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TRADE PUBLICATIONS.

Worthington Meters is the title of a neat eight-page folder just issued by Henry R. Worthington, 114 to 118 Liberty street, New York, N. Y.

The Buffalo Improved Ventilator and the Buffalo Disk Wheels are the two latest publications issued by the Buffalo Forge Company, Buffalo, N. Y. They are pocket size, handsomely printed, and neatly bound in illuminated paper cover. Each catalogue comprises sixteen pages and is thoroughly illustrated. The text in each covers the subject concisely and is accompanied by the necessary tables to make the text of scientific value.

Spiral-Riveted Pipe is the title of a neat catalogue issued by the American Spiral Pipe Works, 1173 South Paulina street, Chicago, Ill. In addition to a full description of the construction of this pipe and many illustrations regarding it, there are several testimonials, pictures showing trying conditions under which the pipe is used for various purposes, together with many tables relating to sizes, horse power, flow of liquid, etc.

The American Tool Works Company, Cincinnati, Ohio, is issuing a pamphlet illustrating its several types of improved metal-working machinery. The pamphlet states that these works have become so large that each type of machine manufactured is built in a separate and distinct department. Lathes, metal planers, drills, drill presses, boring and turning mills are among the articles manufactured by this company.

Bell's steam hammers will be found exceptionally well illustrated and described in an unusually handsome catalogue issued by the David Bell Engineering Works, Buffalo, N. Y. It describes steam hammers in ten sizes, from 250 to 1,600 pounds falling weight. The catalogue is neatly bound in heavy red cover and fully illustrates the many types of hammers which this company manufactures. The illustrations are large and very clear, giving a comprehensive idea of the manner in which the hammers are constructed and operated.

Dodge and Day, Nicetown, Philadelphia, Pa., are issuing a pamphlet of interest to shipbuilders and manufacturers, minutely describing the object and scope of their betterment reports. The pamphlet states that the betterment reports "are written with two things in view: a policy to follow for future growth and the immediate betterment of present conditions with the least possible outlay." In other words, the firm gives its patrons the benefit of expert advice on the subject of systematizing, reducing expenses, obtaining additional business, and making "betterments" in general.

The James Reilly Repair and Supply Company, 229 and 230 West street, New York, N. Y., is mailing a pamphlet calling attention to the facilities the company possesses for the manufacture of all classes of engineering specialties. The company is located on the water front, thus giving it a convenient location for repairs to steamships, yachts, and tugs. The pamphlet illustrates and describes evaporators, coil feed-water heaters, filters, grease extractors, side lights, grease cups, condenser tools and packing, ship pumps, ventilating systems, brass, copper, and iron railings and fittings, electric light and power plants, and other steamship and yacht auxiliaries.

The boat catalogue just issued by the Matthews Boat Company, Bascom, Ohio, is one of the most beautifully printed catalogues which has been received by MARINE ENGINEERING for many months, both in its binding and typographical effect. It comprises 68 pages, and has from one to four or more illustrations on nearly every page. The illustrations include boats of all sizes and types up to yachts of considerable size, including open launches of all kinds, also half-cabin and full-cabin yachts and launches. In addition to boats, the text gives a great deal of information which is necessary for every launch owner to know, including the care of engines and boats, rules of navigation, nautical measurements, racing rules, etc. We believe a nominal charge of ten cents is made for copies of the catalogue and stamps can be sent instead of silver.

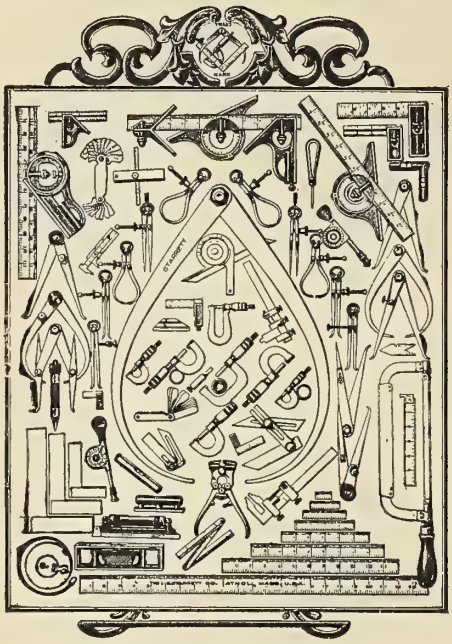
The Laidlaw-Dunn-Gordon Company, 114 Liberty street, New York, N. Y., is distributing Bulletin No. L 509, describing the Meyer-Gear air compressors with rolling-mill frames.

The Importance of Preserving Exposed Woodwork is the title of a pamphlet issued by Samuel Cabot, 70 Kilby street, Boston, Mass. It refers especially to the preparation "Conservo," manufactured by this company. This compound is described, and full information is given regarding its application and its action upon the wood. This preparation is shown to be particularly desirable for use on ship and boat timbers and planking; indeed, wood of all kinds that is open to the corrosive effect of the elements.

A folder, entitled "A Talk on Packing," is mailed by the Republic Rubber Company, Youngstown, Ohio. The folder states that the company's Searchlight packing is the only one-sheet packing manufactured that will not harden under high steam pressure. In another folder this company calls attention to the cross-arm tubular gasket. This gasket has a brass wire mesh running through the center, so that when heat and pressure are applied the wire is embedded in the rubber. The joint is covered with annealed copper vulcanizing sleeve.

Centrifugal pumping machinery is minutely described and handsomely illustrated in the latest catalogue of the Kingsford Foundry and Machine Works, Oswego, N. Y. The catalogue states that the centrifugal pumps of this company are the only ones on the market with the single or side suction that contain the features of self-oiling bearings, solid scrolls or shells, removable suction head (which permits of examination of the interior of the pump without removal from the base or bed), large shafts and pulleys, and an improved stuffing box that will remain tight under the most trying conditions. Different parts are made to template, so that all parts fit where they are intended. Minute instructions are given intending purchasers as to the size and style of pumps suitable to various purposes, and mention is made of the marine engines and fire-tube boilers made by this company.

The American Blower Company, Detroit, Mich., issues a set of seven catalogues which are not only exceptionally fine specimens of printing, but which are of much value in their several lines of engineering. They cover the subject of mechanical draft, the heating and ventilating of manufacturing establishments, American Blower Company steel plate fans for heating, ventilating, and drying plants, forced and induced draft apparatus, etc., American Blower Company hot-blast heaters for the heating and ventilating of public buildings, American Blower Company disk ventilating fans, American Blower Company pressure volume blowers, and American Blower Company exhaust fans. Each catalogue is completely illustrated and with the text, tables, etc., is a valuable contribution to engineering trade publications. Copies of any of the catalogues can be had by the readers of MARINE ENGINEERING upon application to the company.



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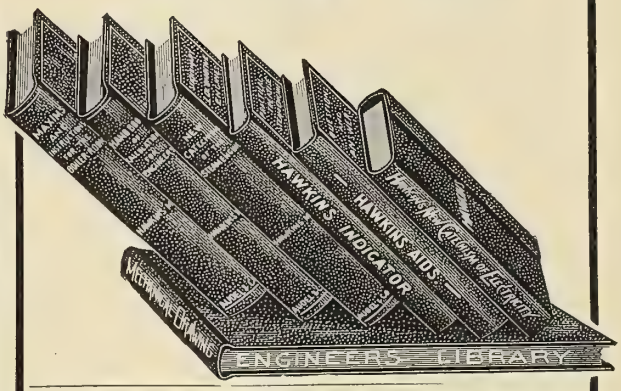

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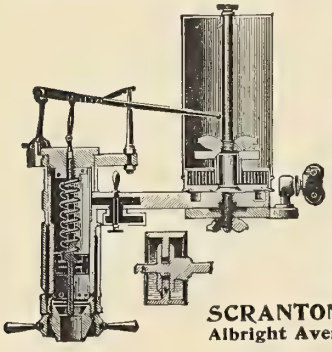

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A copy of the 52-page Illustrated Catalogue of the "Four-Track Series," New York Central's books of travel and education, will be sent free to any address on receipt of a two-cent stamp, by George H. Daniels, General Passenger Agent, New York Central & Hudson River Railroad, Grand Central Station, New York.

The latest short story of engineers, issued by Wyman and Gordon, Worcester, Mass., is devoted to the life and work of James B. Eads.

The Sawyer-Man Electric Company, 510 West 23d street, New York, N. Y., is sending out a pamphlet describing the various forms of electric lamps it manufactures. Much information is given on the subject of light distribution, value of voltage regulation, etc.

Type H Induction Motors is the subject matter of circular No. 1056, just issued by the Westinghouse Electric and Manufacturing Company, Pittsburg, Pa. This is a revised publication and supersedes a previously-published circular which is now out of print. The circular comprises twelve pages very handsomely printed and thoroughly illustrated.

Every user of steam brass goods should send for a copy of the fifth edition and revised catalogue No. 7, issued by the William Powell Company, 2525 to 2531 Spring Grove avenue, Cincinnati, Ohio. The catalogue is pocket size and comprises about 175 pages, including index. It gives a great deal of information regarding the large line of engine and boiler-room specialties which this company manufactures, and contains a great deal of other valuable information.

Every reader of MARINE ENGINEERING interested in steam engines will want a copy of Bulletin No. 1 just issued by the Rotary Engine Company, 135 South Second street, Philadelphia, Pa. A number of line drawings are given, showing in full detail the internal arrangement of this engine. The bulletin comprises 16 pages. Although the text describes the engine for direct-connected purposes, the engine is also well adapted to propelling boats and vessels.

William T. Bonner and Company, 53 State street, Boston, Mass., are mailing a folder illustrating and describing the Klinger reflex water gauges and "Wiltbonco" gauge mountings. The folder states that whereas, with the ordinary gauge glass tube, one cannot tell whether it is full or empty, when filled with water the reflex gauge appears black. When empty it instantly shows white, thus rendering mistakes impossible. The heavy marine patterns of the "Wiltbonco" gauge mountings are used in a number of ships in the United States Navy, as well as in the merchant service.

Motor-Operated Valves is the title of Bulletin 34, issued by the Northern Electrical Manufacturing Company, Madison, Wis. The bulletin illustrates and describes the advantages of operating valves by motor power. It describes the Northern back-geared motor, which is claimed gives the required low speed without being larger or much more expensive than a standard speed motor, and does not require that the valve standard be supplied with special conveniences, bearings and shafts for an intermediate set of gears. The armature shaft is geared to the countershaft, supported by the frame of the motor. The whole combination is self-contained. The company is also mailing a pamphlet entitled Northern Small Motors for the economical and convenient operation of machines and tools.

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Write for our BLUE CATALOGUE "D." showing complete line of engineers' pipe fitting tools.

The Powers system of carrying and launching lifeboats is described in a pamphlet issued by Wilbur F. Powers, 318 North Fourth street, Camden, N. J.

Those of our readers interested in the subject of heating appliances will find an interesting catalogue in the one issued by the Economy Car Heating Company, 281 St. John street, Portland, Me., describing the Economy car-heating system.

The Heating and Ventilating of Factory Buildings is the title of a paper recently read at the annual convention of the American Foundrymen's Association by W. H. Carrier, M.E., copies of which can be had from the Buffalo Forge Company, Buffalo, N. Y.

The Flinn Steam Trap, which is especially designed for use on steam vessels, is illustrated and concisely described in a folder issued by Richard J. Flinn, West Roxbury, Mass. A sectional view shows why this trap is especially adapted for marine work.

Electrical and Steam Machinery is the title of a pocket-sized catalogue printed by Rossiter, MacGovern and Company, 17 Battery place, New York city. There are thirty-six pages devoted to a list of electrical machines, engines, boilers, and a great variety of other apparatus which this company has for sale.

The C. W. Hunt Company, West New Brighton, Staten Island, N. Y., issues pamphlet No. 037 illustrating and describing in a few words the cooling towers and elevators, trolleys, railways, hoists, ropes, blocks, sheaves, electric motors, and a number of other specialties which this company manufactures.

Wire Rope is the title of the latest catalogue of the American Steel and Wire Company, The Rookery, Chicago. The many uses of wire rope in marine work and in manufacturing plants of all kinds are fully explained. The company manufactures many varieties of rope. Minute instructions are given for splicing wire ropes.

The Hoshor-Platt Company, 120 Liberty street, New York, N. Y., describes in its latest catalogue the industrial railways, hoisting engines, conveyors, mast and gaff fittings, steel cables, Manilla rope, and other machinery and supplies. The catalogue enters into complete details regarding every article listed, and is profusely illustrated.

Emil Frank, 1123 Broadway, New York, N. Y., has issued a folder describing Remanit pipe covering, of which he is sole agent for the United States and Canada. The folder states that Remanit is a non-heat-conductive covering composed of carbonized silk, used for covering steam pipes, hot air, and water pipes, also for covering cold-water pipes, refrigerators, etc.

Milling machines and milling cutters are described in an illustrated catalogue issued by the Hess Machine Company, Fifteenth and Chestnut streets, Philadelphia, Pa. The company states that it makes a specialty of heavy milling, fast milling, and combined heavy and fast milling machines. Motor drives will be furnished with machines, designed to suit the individual case.

E. F. Houghton and Company, 240-250 West Somerset street, Philadelphia, Pa., are mailing a folder describing and illustrating the "Marck" steam trap. This trap has but one movable part, and the valve is actuated by the expanding and contracting of a Marck steel tube. They state that they send out traps on thirty days' trial, to be returned at their expense if unsatisfactory.

Reynolds and Company, 418 Perry-Payne Building, Cleveland, Ohio, are mailing a folder describing the Reynolds feed-water heater and purifier. The folder states that the invention has for its object the heating of feed water for the boiler, and the removal of a greater part of the impurities contained therein, before the heated water is discharged into the boiler.

The Crandall Packing Company, 123 Liberty street, New York, is mailing a calendar bound in pamphlet form, calling attention to its round Helios gaskets, white sheet packing, new model ring for high-speed engines, expansion coil packing for gas and ammonia, and red tubular gaskets. The back of the calendar is a post card which may be used to bring a salesman or specifications. A calendar will be issued every month.

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The Frank Mossberg Company, Attleboro, Mass., issues a catalogue entitled "Our Facilities and What We Do." This includes quite a line of automatic machinery for various purposes.

The H. W. Johns-Manville Company, 100 William street, New York, is distributing a large mailing card regarding "Wasted Power." Reference is made to this company's asbestos fire felt covering.

The White Craft and Power Company, Port Richmond, Staten Island, N. Y., successor to Reeves and White, is sending out an illustrated pamphlet describing its engines, yachts, and launches, also giving prices on new work ordered.

The Coatesville Boiler Works, Coatesville, Pa., are mailing an illustrated catalogue describing self-supporting wrought-steel stacks, standpipes, corrugated furnace boilers, garbage-plant digestors, separators, etc. The illustrations give an excellent idea of the quality and variety of output.

The Pope Manufacturing Company, Hartford, Conn., has reissued the Pope bicycle daily leaf calendar, which for many years was a prominent feature on almost every business man's desk. One of these calendars will be sent to any inquirer upon receipt of five two-cent stamps.

C. W. Hunt Company, West New Brighton, Staten Island, N. Y., describes in Pamphlet .037 steam and electric hoisting engines, conveyors, industrial railways, locomotives, blocks and sheaves, parabolic boom towers, mast and gaff fittings and other articles.

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BUSINESS NOTES.

MARINE HARDWARE.—Users of marine hardware will find a very complete and up-to-date line of goods manufactured by the Thomas Laughlin Company, 143 to 151 Fore street, Portland, Me. This company, we are informed, has recently more than doubled its capacity in every line, and is continually adding new buildings and machinery in order to keep up with the demands for up-to-date marine hardware. A list of the company's specialties, given in a very large and handsome cata logue which the company has just published, covers nearly ten pages, and includes almost everything that can be asked for, such as anchors of all kinds, blocks, boat fittings, chains in all varieties, cleats, everything needed in the line of deck fittings, hinges, hooks, lamps and fittings, steerers, etc. The catalogue in question is bound in stiff cloth and comprises 290 pages of text, illustrations, and tables. No builder of boats, launches, or small yachts could very well be without such a very complete catalogue as this is.

REMOVAL OF THE RACINE BOAT MANUFACTURING COMPANY.—It will be recalled that the plant of the Racine Boat Manufacturing Company, Racine, Wis., was destroyed by fire last summer. After looking about, the best position for the rebuilding of the business on the Great Lakes which the company could find was at Muskegon, Mich., and the new plant is almost ready to begin turning out the well-known boats of this company. The new location comprises ten acres, and has connected with it three piers each 550 feet long. Deep water leads to the two slips which will allow the largest boats on the lake to tie up at the shops for repairs. Everything will be in working order in the new establishment, it is hoped, before January 20. The new plant will have much larger capacity than the old plant had, enabling the company to considerably enlarge its facilities for building launches, yachts, and boats of all kinds and sizes.

COMPETENT HELP

Marine Engineering Employment Bureau is prepared to put **Builders of Vessels and Marine Machinery** into communication with men whose records have been investigated. **Ship and Yacht Owners** can be provided in the same way with competent men whose records have been thoroughly looked up.

Employers Seeking Help or **Men Seeking Positions**

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309 Broadway, New York, N. Y.

MR. GEORGE CROUSE COOK, naval architect, has removed his offices from 130 Water street to 52 Broadway, New York city.

AMERICAN PRESSED STEEL OFFICES.—A card is sent out by the American Pressed Steel Company, announcing that its sales offices have been moved to 402 Arcade building, Philadelphia, Pa., and that Mr. R. M. Baily has been appointed sales manager.

PARSONS STEAM TURBINES.—Mr. George Westinghouse makes the important announcement that he has acquired for the Westinghouse Machine Company, Pittsburg, Pa., from Mr. C. A. Parsons, the full rights to manufacture in the United States and Canada the well-known Parsons steam turbines for all purposes, including marine propulsion, and that a special department will be organized at the works for the introduction of this engine, in order to more effectively promote its use upon all classes of vessels. Mr. Westinghouse adds: "The steam turbine is not a new or untried invention. There are half a million horse power of Parsons steam turbines in daily operation in different parts of the world; 84,000 horse power of these are in steam vessels. I have made a broad investigation of this question, with the result that the Parsons turbine is the one with which I have concluded to ally my interests. We shall build up a great marine turbine industry in the United States. The importance of the marine turbine has not been overestimated, and it is long past the stage of experiment. For passenger ships, freight ships, yachts, and for battleships, not less than for torpedo boats, the turbine is unquestionably the best engine. For pleasure craft the turbine surpasses all other forms of engine, because of its absolute freedom from vibration. Its compactness recommends it for all classes of vessels. In torpedo boats the saving of room is needed to accommodate other machinery. In naval cruisers and battleships, the engines lie so much closer to the ship's keel as to make them far less likely to be injured by the enemy's shots. We need not call the turbine the engine of the future; it is decidedly the engine of the present."

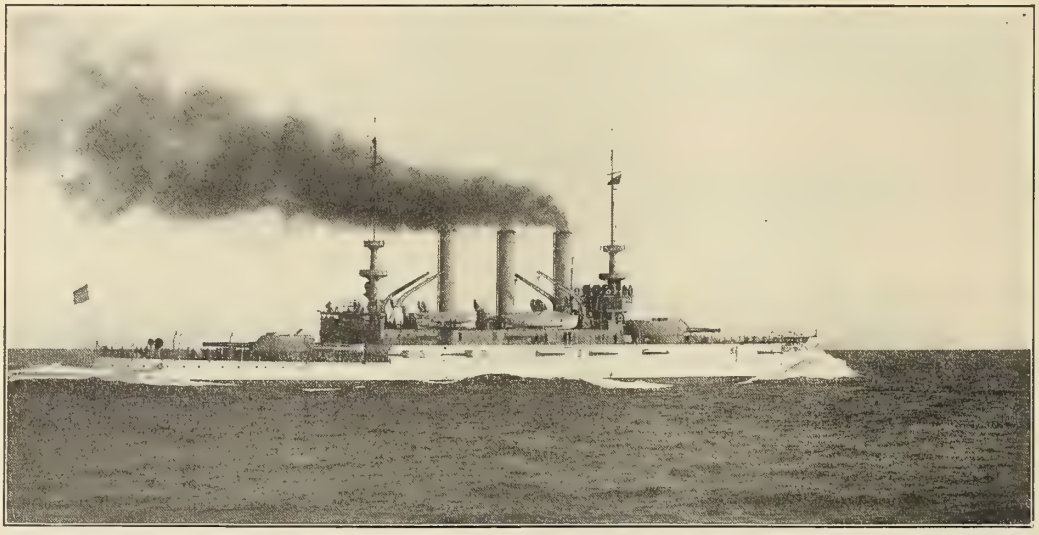
GREAT BARGAINS IN COMPOUND ENGINES.—As will be seen by an advertisement elsewhere, the Reeves Engine Company, 85 Liberty street, New York, N. Y., advertises a great bargain in two 7 1-2 and 17 by 10 Reeves fore-and-aft engines.

ROPES AND FITTINGS.—The Durable Wire Rope Company has leased for a term of years the remodeled stores, 26-30 Atlantic avenue, at the head of Lewis wharf, Boston, Mass., where much more ample facilities are had for carrying in stock a full line of Durable wire rope for all purposes, as well as other ropes and fittings.

STANDARD MACHINERY COMPANY.—The Standard Machinery Company has acquired the business and plant of the Mossberg and Granville Manufacturing Company, and will continue the manufacture of power presses, plain and automatic drop presses, draw benches, Mossberg roller bearings, etc., at the same location, Beverly street, Providence, R. I.

NEW LAUNCH BUILDING CONCERN.—The Chase Pulley Company announces that it has established a boat-building department at 201 Pitman street, Providence, R. I. The company has secured the services of Mr. Charles B. Hadley as superintendent of this department. Mr. Hadley was with the Herreshoff Manufacturing Company for seven years, having charge of the east construction shop. The new shops are fully equipped with tools and machinery for getting out work in the quickest and most economical manner, and a force of skilled boat builders insures first-class work at reasonable prices. These shops are situated on the Seekonk river, near Red Bridge, affording easy access to customers who may desire to inspect the work at all stages of construction. The company will not at first enter upon the building of any particular type of boat, but may later on. It is prepared to build all kinds of boats up to 70 feet in length. The company is also prepared to haul out and store boats during the winter months, and to fit them out in the spring.

U. S. BATTLESHIP MISSOURI



Piston Rods and Valve Stems of main and auxiliary engines fitted with

UNITED STATES METALLIC PACKINGS

SEND FOR OUR CATALOGUE.

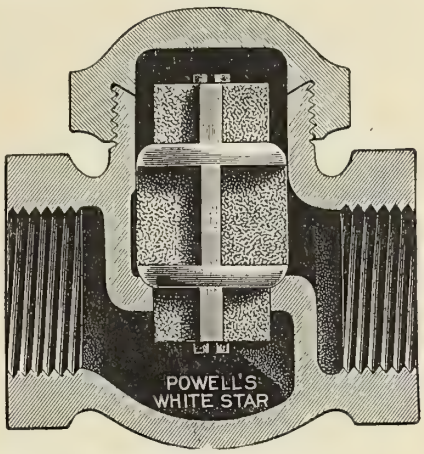
THE UNITED STATES METALLIC PACKING COMPANY

427 North Thirteenth Street, Philadelphia, Pa.

509 Great Northern Building, Chicago, Ill. MORAN BROTHERS, Seattle, Wash.

"WHITE STAR" CHECK VALVE

Reversible and Re-Grinding



Disks in one piece with double seating heads.
Both ends made to gauge.
Economical because reversible and made of best material.
Will withstand a temperature of 2,000 degrees.
Simple and convenient—Re-grinding effected by inserting screw-driver in slot at either end of disk and rotating back and forth.

THE WM. POWELL CO.

Everything in the steam line for the boiler and engine room.

CINCINNATI, OHIO, U. S. A.

New York Agent: H. H. BEALS, 51 Cliff St.
Philadelphia Agent: C. J. RAINEAR & CO., 515 Arch St

THE STORY OF PHOEBE SNOW.

If you have ever taken a railroad trip you will enjoy the "Story of Phoebe Snow," which describes in a series of dainty pictures the experiences of a pretty girl who went to Buffalo. The illustrations are in seven colors, each reproducing a design of the girl in white which the Lackawanna Railroad has made so familiar in the last few months. The booklet has a particularly pleasing cover and will afford considerable amusement beside giving information which every traveler ought to know. It will be sent in response to request, accompanied by two cents in stamps, to T. W. Lee, General Passenger Agent, New York City.

MARCK STEAM TRAP.—E. F. Houghton and Company, Third and Somerset streets, Philadelphia, Pa., are making a very liberal offer to users of steam traps. The offer is, that Marck steam traps will be forwarded to any one who has use for these specialties, and if the traps do not give satisfaction and make a large saving in the fuel bills, they can be returned within thirty days and no charge will be made. This trap has been on the market for many years in Europe, and has been sold in large numbers in this country during the past six years.

THE DIAMOND DRILL AND MACHINE COMPANY, Birdsboro, Pa., has exclusive patent rights in the United States for Wagner cold saw cutting-off machines. The company makes steel castings and the Jackson belt-lacing machine, and has recently added extensive improvements to its plant. A number of casting orders have been received from railroads, and with the increased capacity it will be in good shape to turn out orders rapidly. The tools in the finishing and machine shops are up to date, and a number of practical labor-saving devices are in use.

THE NICHOLSON SHIP LOG.—Captain Rubelli, master of steamship *Colonel E. L. Drake*, recently wrote to the Nicholson Ship Log Company, Cleveland, Ohio, as follows: "I have recommended the use of your log to the ships of the J. M. Guffy Petroleum Company, the steamship *Strombers* of the Shell Transport and Trading Company of London, and the steamship *Northam*. I also gave the captain of the *Strombers* one of your record charts to take to England to show his people. Will also recommend that this log be installed on our new ship the *Captain Lucas*. On our last trip to Port Arthur, Texas, and return we made a run of 505 miles, from Tortugas lighthouse to Ship Shoals lighthouse in the Gulf of Mexico, the log registering one and one-half miles more."

THE UNITED STATES INDESTRUCTIBLE GASKET COMPANY, 8 South William street, New York, N. Y., states that the corrugations on its metal gasket are, as far as resisting the pressure of the flange unions, a series of concentric arches which approach flattening only under great pressure. The summits of the corrugations or arches form a series of dams over which the air, steam, water, oil, or other liquid cannot pass. As to resilience, the company says that the tests in the United States Navy showed that where a line of pipe, coupled with flange unions and packed with this gasket, was purposely forced out of line, that the gasket on one side, by the unusual pressure, flattened considerably more than on the other side, the corrugations of which seemed to spring back to their former shape, thus holding the joint tight all around. This, of course, was a very radical form of expansion on one side and contraction on the other. In an ordinary run of pipe the company says that it will be found that these gaskets, especially where they are not set too tight, will take care of any expansion and contraction, and that the cost is materially less than rubber and other destructible packing.

A Most Useful Book for Engineers and Draughtsmen

Hawkins-Emett Diagramal Formulae

IT CONSISTS OF

25 cards, about 8x10 inches in size, on each of which is worked out diagrammatically some special part of engines of different powers, such as thickness of cylinder walls, diameter of piston rods, area of port openings, etc.

PRICE, $3.00, POSTPAID

Marine Engineering, 309 Broadway NEW YORK

ASK ABOUT

Steam Goods
Nautical Goods
Electrical Goods
Yachting Goods
Any kind of Goods

through the

Information Bureau

The Townsend-Downey Shipbuilding Company, Mariners' Harbor, New York, N. Y., which recently went into the hands of a receiver, has reopened its shipyard and on January 2 expects to employ a full force of workmen.

The Loomis-Pettibone Gas Machinery Company, 52 William street, New York, N. Y., has opened the following branch offices: Boston, State Mutual Building; Pittsburg, Farmers' Bank Building; Chicago, First National Bank Building .

The Mosher Water Tube Boiler Company, 1 Broadway, New York, N. Y., states that of four monitors recently built by the United States government, but one, the *Florida,* which was the only one equipped with Mosher water-tube boilers, escaped a financial penalty for not equalling the speed required by the builders' contracts with the government. The Mosher boilers have been installed in eleven torpedo boats and one monitor in the United States Navy, in six torpedo boats in the Russian navy, in two gunboats for Mexico, and in one torpedo boat and one cruiser for Brazil; also in numerous well-known steam yachts. The company claims for its boilers that they are the simplest, lightest, and most compact boilers made; that they can be cleaned, retubed, and repaired without disturbing any pipe connection or removing the casing. Low-stack temperatures, steady water line when under forced draft, rapid steaming, accessibility, and freedom from leaks are among the other desirable features which are claimed for the Mosher boilers.

White Star Valves.—The William Powell Company, 2525 Spring Grove avenue, Cincinnati, Ohio, makes the following claims as to special features of the White Star valves which it manufactures: Their construction is simplicity itself; they are made to a gauge in all their parts, and of the best of materials. They are unequaled for durability; they are handsome and symmetrical; they control fluids perfectly; disks are not only re-grinding, but are reversible. The "Powelium" white bronze, of which the disks are made, is a new alloy, white as silver, and will outwear all other makes of disks. Guaranteed to withstand a temperature of 2,000 degrees. There is a patented mode of securing the bonnet to the body neck. The tighter the union is screwed down on the beveled face, the more the neck thread is expanded into the union nut. The valve stem is accurately guided for regrinding independently of the bonnet. Every valve carries it own lock bar for regrinding.

Vessels Classified.—The American Bureau of Shipping, 66 to 70 Beaver street, New York, N. Y., reports the following vessels recently classified in the Record of American and Foreign Shipping: American screw *Yamasee;* American schooner *Goldsboro;* American schooner *Massasoit;* American schooner *Eleanor F. Bartram;* American schooner *Horace A. Stone;* American schooner *Quinebaug;* American schooner *Luzon;* American tern *Horace P. Shares;* American bark *Edmund Phinney;* American tern *John R. Bergen;* American tern *Mary E. Morse;* American barge *Annie;* American barge *101;* British steamer *Havana;* British steamer *Squid;* British schooner *Albert D. Mills;* British tern *Hiddie Poore;* British tern *Myrtle Leaf;* British tern *Frances;* and British brig *Ocean Belle.*

Portable Ventilators.—In no branch of government service has the matter of ventilation been given such serious consideration as in the navy. The construction of the modern vessel renders it extremely difficult to secure proper ventilation in some portions below the water line. Noticeable for its novelty, among the various methods used to properly ventilate such places, is the portable ventilating set, consisting of a small exhauster of the Monogram type directly connected to an enclosed electric motor. It is very light, moves a large body of air, and is provided with handles for carrying from place to place, enabling the crew to work in any portion of the vessel with comfort, and is but one of the many types of blowers manufactured by the B. F. Sturtevant Company, Boston, Mass.

"Throw Away Your Glue Pot"

WHY have the smell of boiling glue around you all day, and the waste and expense of boiling dry glue, when you can for less money use

ARMY AND NAVY LIQUID GLUE?

NOT A FISH GLUE but a pure hide and sinew glue in liquid form.

THE GLUE OF THE 20TH CENTURY

will do twenty-five per cent. more work than a fish glue. No smell. No dirt. Always ready for use.

Let us send you Samples and Prices

Wachter Mfg. Co.

BALTIMORE, MD.

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12 West 31st Street, New York.

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" 3, A. L. Jones, 289 Champlain St., Detroit, Mich.
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" 7, P. S. Doyle, 253 Cumberland Ave., Portland, Me.
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" 13, John B. Armbright, 2022 N. 11th St., Philadelphia, Pa.
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" 20, Jos. B. Barry, 206 Keel St., Memphis, Tenn.
" 21, L. L. Miller, 306 E. Grove St., Vicksburg, Miss.
" 23, W. R. Lewis, 213 East Front St., Jeffersonville, Ind.
" 24, Jos. B. Flach, 327 N. Fourth St., Paducah, Ky.
" 26, T. H. Kirkbride, 910 East Columbia St., Evansville, Ind.
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" 36, Joseph Thomas, 57 Sea St., New Haven, Conn.
" 37, H. E. Beard, 1741 Huron St., Toledo, Ohio.
" 38, W. H. Collier, 73 Starr Boyd Building, Seattle, Wash.
" 39, Fred. J. Thompson, 138 W. 17th St., Erie, Pa.
" 40, Charles Drouet, 1003 Ave. I, Galveston, Tex.
" 41, Samuel Shaver, 49½ 1st St., Portland, Ore.
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" 51, Henry S. Connell, 12 Ransom St., Muskegon, Mich.
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" 55, J. A. McDougall, P. O. Box 123, Cheboygan, Mich.
" 57, E. B. Meeker, 71 Abeel St., Kingston, N. Y.
" 58, E. Capers Haselden, P. O. Box 31, Georgetown, S. C.
" 59, W. M. Miller, Box 36, E. Boston, Mass.
" 62, N. S. Lawrence, 30 Conn. Ave., New London, Conn.
" 63, Willard Spencer, Str. Quackenbush, A. & T. St. Co., Albany, N. Y.
" 65, W. C. Palmer, c. o. Consumers' Coal Co., Charleston, S. C.
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" 86, S. A. Smith, 737 Menekannee Ave., Marinette, Wis.
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" 89, L. O. Willix, 89 Elizabeth St., Ogdensburg, N. Y.
" 91, R. Davidson, 17 Fairfield Ave., Har. Sta., Ashtabula, O.
" 92, H. E. McArthur, 16 Abstract Bldg., Saginaw, Mich.
" 93, M. E. Davis, 929 D St., N. W., Washington, D. C.
" 94, George R. Jones, Box 222, Washington, N. C.
" 95, P. J. McMahon, P. O. Box 199, Key West, Fla.
" 100, Thos. F. Sullivan, Honolulu, H. I.
" 101, J. K. Cotton, Box 765, Norfolk, Va.
" 102, Fred W. Linsemeyer, 210 Clinton St., So. Haven, Mich.
" 103, A. E. Pittman, P. O. Box 378, Newbern, N. C.

TRADE PUBLICATIONS.

Hamilton Drill Presses, with friction tapping attachment, are the subject of a leaflet issued by the Garvin Machine Company, Spring and Varick streets, New York, N. Y.

The Ross Valve Company, Troy, N. Y., is mailing card calendars suitable for use in desk calendar racks. It is stated that the Ross water engine received the highest award at the Pan-American Exposition.

The Crandall Packing Company, 85 Liberty street, New York, N. Y., has issued its latest monthly calendar calling attention to its piston and valve-rod packing, asbestos wick packing, and metal polish paste.

Isaac G. Johnson and Company, Spuyten Duyvil, New York, N. Y., are mailing a circular illustrating among other things one of their cast-steel projectiles after it had passed through a 10-inch reforged Harveyized nickel steel armor plate. The company states that they give careful attention to the development of very hard and tough grades of steel and castings of every description.

Wilson and Silsby, sailmakers, Rowe's Wharf, Boston, Mass., are mailing a handsome picture of the schooner-yacht *Ariadne,* for which they furnished the sails. The firm make sails for vessels of every size, from the smallest catboat to the largest schooner. Except for the firm's card there is no advertising on the picture, which is mounted on cardboard and is suitable for framing.

Riggs and Brother, chronometer and nautical warehousemen, 310 Market street, Philadelphia, Pa., have issued their 1904 nautical almanac. This almanac contains much information of interest to mariners, giving tide tables for more than 100 points, from Eastport, Me., to Key West, Fla., magnetic corrections, pilot regulations, port wardens' rules, and the like. Price 10 cents.

The American Spiral Pipe Works, 1173-1201 South Paulina street, Chicago, Ill., is mailing an illustrated catalogue describing standard and extra heavy pipe, with flanges attached or with bolted joint connections. A list of plain end pipe in all gauges is also included, besides a price list of standard spiral pipe flanges drilled, attached to pipe, also loose from pipe, and bolted joint connections complete. Weir dam measurements, for measuring the flow of water in streams, tables showing the flow of water through nozzles, and other tables form a part of the catalogue.

Joseph T. Ryerson and Son, Chicago, Ill., in No. 4 of Ryerson's New Technical Library, describe Continental boilers with Morison corrugated furnaces, "what they are, where they are, and what they will do." The firm give a long list of buildings and manufacturing plants where the corrugated furnace boilers are in use, including a number of ship and engine works. Among other advantages it is stated that these furnace boilers are economical in first cost because, being self-contained, they are independent of masonry setting, cast-iron fronts, buckstays, tie rods, etc., require little foundation preparations, and can be easily removed from one location to another.

Cincinnati Air and Gas Compressors are described in Pamphlet L-26-A, just issued by the Laidlaw-Dunn-Gordon Company, 114 Liberty street, New York, N. Y. These machines are of medium and small sizes, the steam ends being equipped with plain slide valves and Meyer valve gears, and the air ends with poppet valves. The company states that one of the compressors is of an entirely new type in that the air cylinders are provided both with mechanically-moved valves and with poppet valves, all points in the compression cycle being determined by the mechanically-moved valves with the exception of the opening of the exhaust, which is determined by the poppet valves. It claims that this arrangement combines the positive action, noiseless operation, and durability of mechanically-moved valves with the elasticity of poppet valves, at the same time avoiding the noise and rapid wear of the latter. The pamphlet will be sent upon request to those interested.

When writing to advertisers please refer to MARINE ENGINEERING.

The Buffalo Gasoline Motor Company, Buffalo, N. Y., is mailing a card with a picture of a gasoline launch going at high speed, with the motto "The Speed-Launch Express." Length over all is said to be 26 feet 10 inches, beam 4 feet, speed 12 1-2 miles.

The Edson Manufacturing Company, 255 Atlantic avenue, Boston, Mass., is mailing a card calling attention to its steering gear, pumps, windlasses, and other marine appliances.

The Cancos Manufacturing Company, 142 North Second street, Philadelphia, Pa., is sending out a folder mentioning its Black Squadron ring packing, and stating that it is the only four-wedge, self-setting, adjustable packing on the market. A postal card is attached to send for a free sample of the packing, and a copy of its little book, "The Engineer."

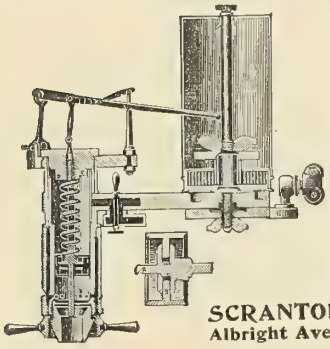
The Under-Feed Stoker Company of America, Marquette Building, Chicago, Ill., is mailing *The Publicity Magazine,* which it publishes. This magazine illustrates and describes the Jones stoker, giving photographs of buildings and manufacturing plants where the stoker is in operation. The stoker can be fitted to boilers already installed as well as to new plants. The company claims that its system is the only method of boiler firing in which the supply of fuel and air is automatically proportioned and controlled by the demand for steam.

Hall Brothers Gas Engine Works, Philadelphia, Pa., is mailing a pamphlet illustrating and describing marine gas engines. Its 1 1-2 and 3-horse-power sizes are of the two-cycle type with single cylinders. The company states that they are of sufficient size in bore and stroke to develop full rated horse power at moderate speed. The four-cycle engines are both single and multi-cylinder according to power, and are built in sizes from 4 to 100 horse power. The four-cylinder engines can be operated by kerosene as well as gasoline.

The Marine Manufacturing and Supply Company, 157-158 South street, New York, N. Y., has issued two illustrated catalogues in pamphlet form, lettered A and B. In these catalogues the company describes marine engineers' and contractors' supplies and specialties. Suction pumps, diaphragm pumps, plunger pumps, force pumps, deluge pumps, ship and yacht pumps, hose, strainers, suction baskets, hose couplings, iron towing bitts, windlasses, capstans, winches, and cordage are among the articles the company deals in.

The 1904 catalogue of the Knowles Steam Pump Works, 114-118 Liberty street, New York, N. Y., is a book of about 150 pages showing nearly half as many full-page illustrations of different types of direct-acting steam pumps for boiler feeding, mine drainage, waterworks service, etc., also electric and belt-driven pumps, artesian well pumps, air compressors, and ammonia pumps, both fly-wheel and direct-acting, jet condensers, relief valves, air and circulating pumps, wrecking pumps, vacuum pumps, sugar-house pumping machinery, and pumping machinery of every type and for every purpose found in engineering work. This catalogue will be sent free to those interested, upon request.

AN ENGINEER WANTED



A First-Class Indicator, Reducing Wheel and Planimeter.

Got them of us, at a price so low that he was astonished. YOU can do the same, and should send for our catalogue, which not only describes these instruments fully, but gives $ $ $ worth of instructions in their use. **It is free**

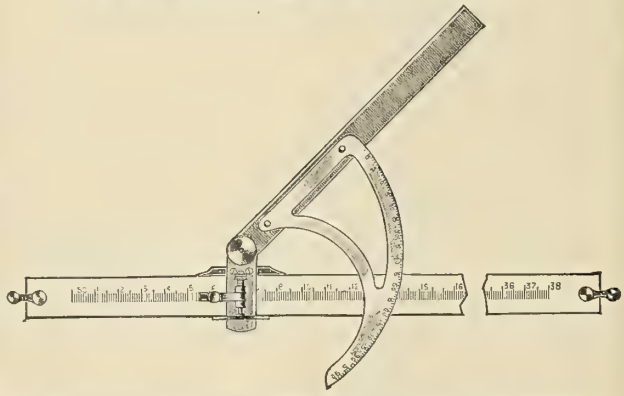
We make also **Steam Pumps, Steam Separators, Oil Extractors, Shaking Grates, and Furnace Blowers,** all in the catalogue

SCRANTON STEAM PUMP CO.
Albright Avenue, Scranton, Pa.

IF A

Starrett Protractor

is once used, to use any other will be like returning to a bad habit.



In Material, Design, Workmanship, and Accuracy, this instrument is not excelled.
Made with bevel arm 15 to 36 inches; auxiliary blades carried in stock up to 36 inches.

Send for our FREE CATALOGUE No. 17L, which tells of all the STARRETT TOOLS.

The L. S. STARRETT CO., ATHOL, MASS.

The William Powell Company, 2525 Spring Grove avenue, Cincinnati, Ohio, will mail upon application from any inquirer a catalogue describing sight-feed lubricators, glass oilers, grease cups, and cylinder oil pumps.

The Crosby Steam Gauge and Valve Company Works, Boston, Mass., is mailing a folder illustrating and describing Crosby spring-seat valves. The folder claims as advantages for these valves strength, quality, and durability; disc seats and valve seats made of the best alloy, resisting any cutting from the flow of steam, all working parts renewable without removal of valve from piping, all parts interchangeable, a full opening through the valves, that they may be easily and quickly repacked, and the fact that all valves when completed are tested under more than 400 pounds hydraulic pressure. The company guarantees the valves not to leak.

Fred. Medart, 3530 to 3545 De Kalb street, St. Louis, Mo., has mailed a handsome illustrated catalogue describing power launches, sail, and row boats of every description, marine vapor motors, and complete boat equipments. Mr. Medart states that his favorable location in the Mississippi valley lumber region, together with the fact that he possesses one of the most completely equipped plants of the kind in existence, enables him to offer a superior line of supplies at the lowest possible price. It is stated that the gasoline engines sold at this plant are of a simple and compact design, and that they have fewer working parts than any other gasoline engines made. Vapor launches, row boats, combination row and sailing boats, sailing canoe materials, boat-building materials, launch hull frame materials, sailing yacht frames, and materials for a one-design "skip jack" are among the specialties Mr. Medart manufactures. The claim is made that by the Medart method of supplying boat-building material, the construction by amateurs of high-class boats is made possible, and at a very low price. Numerous testimonials to this effect are given.

IT IS WELL to mix DIXON'S PURE FLAKE GRAPHITE with your cup greases. It is still better to use DIXON'S GRAPHITED CUP GREASES because their formulae and proportions are the result of wide experience in the matter of the most efficient percentages for highest duty.

Made in seven degrees of hardness; the best greases procurable.

Write for Booklet 75-I.

JOSEPH DIXON CRUCIBLE CO.

Jersey City.

Circular No. 1059, issued by the Westinghouse Electric and Manufacturing Company, Pittsburg, Pa., is devoted to automobile motive-power equipment and is profusely illustrated.

The Coburn Trolley Track Manufacturing Company, Holyoke, Mass., is mailing an illustrated pamphlet describing its overhead tram-rail traveling cranes, electric carriers, and appliances.

The Smooth-On Manufacturing Company, Communipaw avenue, Jersey City, N. J., has issued a booklet telling about Smooth-On, its different combinations and applications. The latest combination is Smooth-On with rubber, and it is found that this makes an excellent sheet packing, one that will withstand very high temperatures and pressures. Catalogue sent upon application.

Drop forgings are described in an illustrated catalogue issued by Wyman and Gordon, Worcester, Mass. The firm state that they make drop forgings of greater variety, heavier weight, and more complexity than any other concern in the country, their die forgings weighing up to more than 150 pounds each. The firm also illustrate and describe their drop-forged crank shafts, calling attention to the many special sizes and shapes they make, such as flanges on the ends, counterweights forged on, seats for counterweights, and multiple throw cranks set at any angle desired. They announce that they will continue to mail monthly to interested parties their "Short Stories," being little biographies of eminent American and European inventors and engineers.

The Great Lakes Engineering Works, Detroit, Mich., manufacturer of marine engines and steel ships, hydraulic dredging machinery, air compressors, marine boilers, and propeller wheels, is mailing a catalogue describing its products. Regarding the company's "semi-steel" propeller wheels, the catalogue states that "the use of semi-steel enables us to reduce thickness of blades and weight, and consequently to give increased efficiency; its use makes it no longer necessary to resort to the higher-priced bronze and steel wheels."

The Brown and Sharpe Manufacturing Company, Providence, R. I., is mailing a handsomely printed booklet illustrating and describing the many varieties of cutters the company makes. There are eighteen illustrations showing milling cutters of various kinds, side-milling cutters, interlocking side-milling cutters, end mills, spiral end mills, angular cutters, concave cutters, interlocking concave cutters, convex cutters, metal slitting saws, screw-slotting saws, taper reamers, gear cutters, and similar cutting machinery. Anyone desiring cutters of any kind should not fail to send for this booklet.

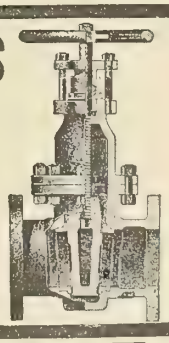
The Buffalo Forge Company, Buffalo, N. Y., has issued three very attractive booklets entitled "A Compound Engine Test," "Mechanical Induced Draft," and "Buffalo B." The first of these booklets describes and illustrates a test conducted at Sibley College, Cornell University, Ithaca, N. Y., of Buffalo Forge engine No. 1256. Tables are given showing results of the test which were extremely flattering to the maker. The second booklet describes and illustrates mechanical induced draft, and tells of many manufacturing plants where the Buffalo Forge Company's mechanical induced draft machinery is in operation. This booklet also describes automatic feed pumps, jet condensers, and automatic cut-off engines. The third booklet is devoted to "Buffalo B" volume blowers and exhausters.

The Philip Carey Manufacturing Company, Lockland, Ohio, is mailing a pamphlet describing the uses of its magnesia pipe coverings, and giving a long list of naval vessels, manufacturing plants, etc., where the covering is in use. The company states that its coverings have been used by the United States government since their introduction, and after being subjected to severe and extended tests. The company is also distributing an illustrated catalogue entitled "Carey's Coverings," which describes asbestos and magnesia steam pipe and boiler coverings, etc. The claim is made that these coverings are absolutely fireproof and thorough non-conductors of heat, that they confine the heat to the pipes and prevent loss through radiation, prevent the condensation of steam, obviate the necessity of excessive firing, and largely reduce the amount of fuel necessary; that they save enough fuel within six or eight months to more than repay their original cost, that they outlast the furnaces to which they are applied, and are in use and recommended by thousands of steam users throughout the country.

WATCH THIS SPACE FOR OUR NUMEROUS SPECIALTIES.

WALWORTH MFG CO
TOOLS and SUPPLIES for STEAM WATER and GAS USERS
BOSTON MASS

WALWORTH IRON BODY GATE VALVES



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Extra Heavy for 250 lbs. Steam.
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JOBBERS SELL THEM—IF YOURS DON'T, WRITE.
New York, Park Row Building. **WALWORTH MFG. CO.,** Boston, 128 Federal Street.
Write for our BLUE CATALOGUE "D." showing complete line of engineers' pipe fitting tools.

The White Craft and Power Company, Port Richmond, Staten Island, New York city, is mailing its monthly list of cruiser yachts, launches, house boats, and other craft for sale. It is stated that all motors are thoroughly overhauled and tested, and guaranteed to be in good working order before delivery.

The Lee Injector Manufacturing Company, Port Huron, Mich., is mailing a booklet illustrating and describing restarting injectors, ball check valves, globe and angle valves, purger attachments, ejectors, water gauges, strainers, etc. Much information is given regarding the size and care of injectors, temperatures, and steam losses.

A. D. Granger Company, 95 Liberty street, New York, N. Y., is mailing Bulletin No. 3 calling attention to the advantages of placing all contracts for the installation of a complete steam or electric plant with one responsible house. The company states that with its ten years' experience it is thoroughly competent to handle projects of any size with the best results.

The Rockwell Engineering Company, 26 Cortlandt street, New York, N. Y., has issued a folder illustrating and describing the new Rockwell rotary melting furnace for copper, brass, bronze, aluminum, etc. Oil or gas fuel may be used and there are no crucibles. A description of this furnace is published in our editorial columns.

Steel, Nacey and Hynd, marine architects, Western Reserve Building, Cleveland, Ohio, announce that they have taken over the business of Robert Logan, marine architect, Cleveland, and that they are prepared to furnish designs and specifications for all classes of lake vessels, to superintend construction, and to make appraisals and valuation.

The Acorn Engineering and Manufacturing Company, 27 Thames street, New York, N. Y., is mailing an illustrated folder describing the Acorn scale attachment. It is stated that a weight can be taken in one-fourth the time required by the usual method, and with absolute accuracy. The use of the attachment adds a perfect tare beam to the scales, as the tare can be instantly counterbalanced by moving the sliding poise. It is further claimed that the attachment adds 100 pounds to the capacity of the scales.

Rumsey and Company, Limited, Seneca Falls, New York, is mailing a circular describing hand pumps for steamboats, sailing vessels, wharves, factories, railroads, etc. Regarding the "Eagle" ship's main and bilge pump, it is stated that at a competitive test in New York city, this pump proved victorious over all others, two men filling a 650-gallon cask in nine minutes, raising the water to an elevation of 20 1-2 feet. Diaphragm and force pumps are among the specialties manufactured by the company.

Queen and Company, Incorporated, 1010 Chestnut street, Philadelphia, Pa., is mailing a pamphlet describing scientific instruments. The mathematical catalogue consists of 236 pages and will be mailed upon application. Drawing instruments, protractors, scales, precision, planimeter, slide rule, and other calculating instruments; triangles, wood, rubber, transparent celluloid, German silver, and steel; draftsmen's curves, rulers, and drawing boards are illustrated and described in this catalogue. The astronomical and meteorological departments are very complete.

GENERAL MACHINE WORK

Model and Experimental Work
Plans and Specifications Prepared
Prompt Repair Work

ACORN ENGINEERING & MANUFACTURING CO.
27 THAMES STREET, - - NEW YORK, N. Y.

MARINE EXHIBITS
AT THE
SPORTSMEN'S SHOW
Madison Square Garden, New York
FEBRUARY 19—MARCH 5

Will be one of the principal features of the Tenth Annual Exhibit.

A lake 190 x 60 feet will afford every facility for demonstrations with gasolene and electric launches.

The following leading Marine Engine and Launch Builders have already secured exhibit space:

WESTERN GAS ENGINE CO.
J. W. NEWBURY
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A limited amount of space still unsold. For further particulars, address

SPORTSMEN'S EXHIBITION CO.
1123 Broadway, - - New York City

CONDENSER TUBES
last longest if made of
"BENEDICT-NICKEL"
ELECTROLYSIS is positively resisted because "Benedict-Nickel" is an alloy of nickel and copper.
CORROSION is impossible, as the tubing is so perfectly homogeneous.
Our treatise on "Electrolysis of Condenser Tubes" is very valuable and costs you nothing. Send for it.
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AN EMPLOYMENT BUREAU

BUILDERS OF SHIPS, Yachts, and Launches are often in need of Superintendents and other employees down the line, including engineers, draftsmen, foremen, machinists, patternmakers, foundrymen, fitters, etc.

ENGINE AND BOILER Builders frequently have similar vacancies which they are unable to fill satisfactorily or promptly.

SHIP AGENTS AND OWNERS may want licensed masters or pilots, engineers or assistants, or other help for shore or sea duty.

YACHT AND LAUNCH owners have great difficulty in securing masters, engineers, navigators, and other competent help.

To bring employee and employer together is the sole purpose of MARINE ENGINEERING EMPLOYMENT BUREAU.

First class men seeking employment will find this Bureau of great help in securing positions because of its confidential relations with employers.

Employers have, through this Bureau, the advantage of being brought into communication with men of experience and ability who would otherwise be unknown to them, and whose records have been investigated, and, at the same time, are saved the bother of being overwhelmed by applications for positions as soon as it becomes known that there is a vacancy.

For positions of responsibility the services of this Bureau are particularly valuable.

For full particulars address:

Marine Engineering Employment Bureau,

309 BROADWAY, NEW YORK.

CALENDARS RECEIVED.

The Morris Machine Works, Baldwinsville, N. Y., a calendar with a handsome lithograph of a sea-coast scene called "When the Flowing Tide Comes In."

Moran Towing Company, 10 South street, New York, N. Y., a calendar calling attention to its general towing business, and the fact that it fits tugs with fire and steam pumps and all necessary wrecking apparatus.

National Electric Company, Milwaukee, Wis., a calendar with a handsome reproduction in an oval setting of a painting of a young girl. The picture is called Cosette, and the calendar directs attention to electrical machinery and air brakes made by this company.

The American Steam Gauge and Valve Manufacturing Company, Jamaica Plain, Boston, Mass., a calendar illustrating its steam gauges, and calling attention to its valves, indicators, and governors.

Smooth-On Manufacturing Company, Jersey City, N. J., a calendar calling attention to its iron cements and sheet packings.

The Peters Cartridge Company, Cincinnati, Ohio, a calendar with a picture of a moose toiling through storm and snow past a hunter's cabin, with the motto "Protected."

The Cleveland Pneumatic Tool Company, Cleveland, Ohio, a calendar with a handsome lithograph of the head and bust of a young woman, artistically mounted on dark cardboard.

The Philip Carey Manufacturing Company, Lockland, Ohio, a calendar with a handsome oval picture in colors of a young girl leaning on a divan, the picture being easily detached and suitable for framing. The catalogue calls attention to the magnesia flexible cement roofing and magnesia pipe coverings manufactured by this company.

The Delaware Marine Supply Manufacturing Company, Wilmington, Del., a very attractive calendar in an oxidized bronze frame with a brass stand. Attention is called to the company's port lights, car trimmings, ship fittings, marine hardware, brass, bronze, and gun-metal castings, and other specialties.

Alfred B. Sands and Son, 134 Beekman street, New York, N. Y., a calendar with a well-known water color of a marine subject reproduced in the colors of the original drawing. Below is a calendar for 1904, and against each day is given the tidal calendar for Boston and New York, for the forenoon and afternoon, giving the hour of high water and low water, the height of the tide, and the time of sunrise and sunset. Also a table showing the widths of openings for vessels in all drawbridges in Boston, and the distances and bearings of prominent lights, buoys, etc., between New York and Mt. Desert, Me., magnetic courses, and distances. A copy will be sent upon application to all persons mentioning MARINE ENGINEERING.

THE ONLY WAY

To make a boat white and keep it white—the only way to paint a boat in tints and preserve the tints—the only way to make a boat beautiful and keep it beautiful, is to

Paint it with ZINC WHITE

FREE: Our Practical Pamphlets:
"The Paint Question,"
"Paints in Architecture,"
"Specifications for Architects,"
"French Government Decrees."

THE NEW JERSEY ZINC CO.
71 BROADWAY
NEW YORK

We do not grind zinc in oil. A list of manufacturers of zinc white paints will be furnished on request.

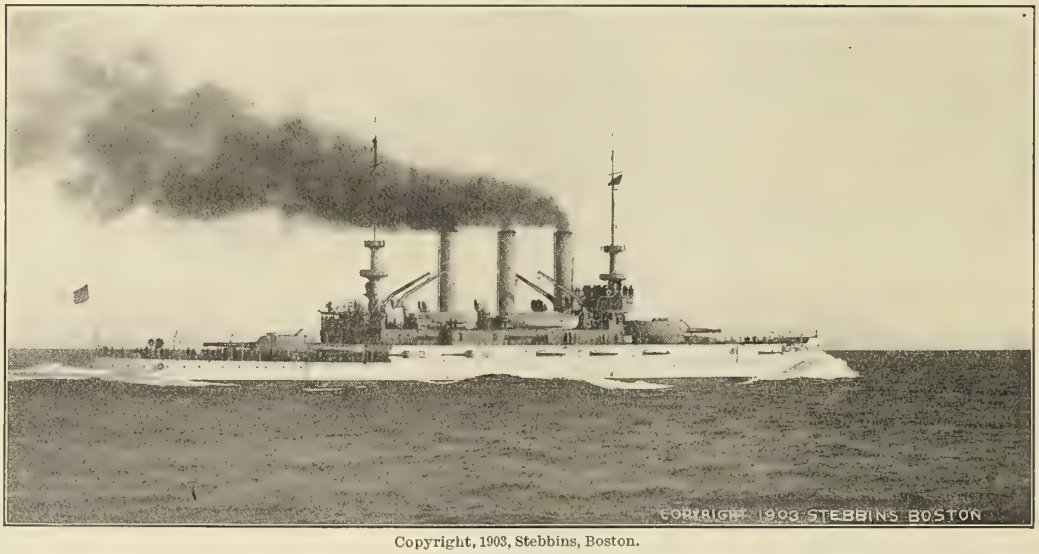
BUSINESS NOTES.

A material for preventing loss by fire and danger to life from the short-circuiting of high-voltage electrical wires, for which the trade-mark "Niagrite" has been adopted, is being placed on the market by the H. W. Johns-Manville Company. "Niagrite" is furnished in strips of several widths, from 3 inches to 36 inches, suitable for wrapping spirally on electrical cables, and is held in place with asbestos fire-proof glue, thus protecting the cables from external fire and confining any internal fire. The material presents a neat and permanent finish and is not affected by atmospheric conditions. It has been adopted by the Niagara Falls Power Company, the International Power Company, Buffalo Street Railroad Company, New York Edison Company, and other important electrical plants. Particulars may be obtained from the H. W. Johns-Manville Company, 100 William street, New York.

Wilson and Silsby, Rowe's Wharf, Boston, Mass., have made a suit of sales for the 125-foot water-line schooner-yacht *Intrepid,* owned by Lloyd Phoenix, New York. They also report the following list of orders already received for 1904: suits of sales: 10 suits for 17-footers, J. O. Johnson, White Bear, Minn.; *Chickadee,* F. E. Peabody, Boston, Mass.; 18-footer, George Lawley and Son, South Boston, Mass.; 30-footer, G. R. Liljegren, Gothenburg, Sweden; 35-footer *Umbrina,* W. H. Childs, New York, N. Y.; 80-footer *Chanticleer,* George W. Weld, Boston, Mass.; 18-footer, Charles F. Adams, 2d, Boston, Mass.; *Ada,* Fred. H. Seavey, Boston, Mass.; *Medric,* Herbert H. White, Cambridge, Mass.; ice boat *Jack Frost,* A. Rogers, Hyde-Park-on-Hudson, N. Y.; 21-footer, Rice Brothers, East Bootbay, Me.; *Uncle Sam,* J. Hopkinson Smith, New York, N. Y.; 18-footer, George C. Earle, Jr., Philadelphia, Pa. Mainsail for ice boat *Wizard,* R. D. Chandler, Fair Haven, N. J.

The Maxfield-Francke Company, 120 Liberty street, New York, N. Y., reports that it has made the following shipments of the Francke four-ported engine: Under-Feed Stoker Company of America, Chicago, Ill., first order 7 by 6 engine direct-connected to steel plate forced-draft blower; Struthers Wells Company, Warren, Pa., 7 by 6 engine for operating mechanical stoker; James Beggs and Company, New York, N. Y., 4 by 3 1-2 engine for operating mechanical stoker; Mershon Patent Shaking Grate Works, Philadelphia, Pa., 5 by 4 engine for operating disc ventilating fan; M. A. Hicks, Springfield, Vt., 4 by 3 1-2 engine for driving dynamo; Under-Feed Stoker Company of America, Chicago, Ill., second order, 5 by 4 engine, direct-connected to steel plate, forced-draft blower; Iowa Heat, Light, and Power Company, Des Moines, Iowa, 7 by 6 engine direct-connected to centrifugal pump; Linn Woolen Mills, Hartland, Me., 5 by 4 engine direct-connected to steel-plate blower; Lever Brothers' Soap Works, Cambridge, Mass., 7 by 6 engine for operating mechanical stoker; Robert Dobson Company, Pittsfield, Me., 7 by 6 engine direct-connected to steel-plate blower; McClave-Brooks Company, Scranton, Pa., 4 by 3 1-2 engine for operating mechanical stoker; George Bowen, South Charleston, N. H., 4 by 3 1-2 engine for driving dynamo; McMurtrie-Guiler Company, New York, N. Y., 5 by 4 engine direct-connected to centrifugal pump, for export to Porto Rico; Iowa Heat, Light, and Power Company, Des Moines, Iowa, second order, 5 by 4 engine direct-connected to centrifugal pump; Northern Engineering Company, New York, N. Y., 4 by 3 1-2 engine for driving dynamo; J. Heidingsfeld, New Brunswick, N. J., 5 by 4 engine for running printing plant. In addition to the above list, it has several makes of generators at the works for which engines are almost ready for direct-connecting, and which will be shipped to various points in the United States at an early date. Some of these engines are operating as low as 100 R.P.M., while others operate at all intermediate speeds up to as high as 800 R.P.M.

U. S. BATTLESHIP MISSOURI



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Piston Rods and Valve Stems of main and auxiliary engines fitted with

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SEND FOR OUR CATALOGUE.

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427 North Thirteenth Street, Philadelphia, Pa.

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The "WHITE STAR" VALVES

has features which appeal strongly to every user of

Simplicity.

Absolute control of fluids.

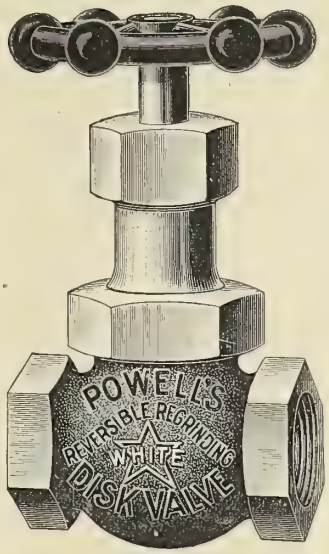
Regrinding and reversible.

All parts made to gauge of the best material.

Disks made of the celebrated "Powelium."

Will outlast 3 to 5 ordinary valves.

Will give the best results for the least money.



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Everything in the steam line for the boiler and engine room.

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THE STORY OF PHOEBE SNOW.

If you have ever taken a railroad trip you will enjoy the "Story of Phoebe Snow," which describes in a series of dainty pictures the experiences of a pretty girl who went to Buffalo. The illustrations are in seven colors, each reproducing a design of the girl in white which the Lackawanna Railroad has made so familiar in the last few months. The booklet has a particularly pleasing cover and will afford considerable amusement beside giving information which every traveler ought to know. It will be sent in response to request, accompanied by two cents in stamps, to T. W. Lee, General Passenger Agent, New York City.

REVISED AND ENLARGED EDITION

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The Standard Hand-Book for the Marine Engineer in all times and in all climes.

684 Pages Several Plates 224 Diagrams

Handsomely bound in green silk, with full gold edges

This unequalled work has been brought thoroughly up-to-date not only by careful revision of the retained text of former editions but by the addition of a great amount of valuable new matter.

THEO. AUDEL & CO., *Educational Book Publishers* 63 FIFTH AVENUE NEW YORK

INCREASED FACILITIES.—The Ollinger and Bruce Dry-Dock Company, Mobile, Ala., is now building a large floating dry-dock which will be 230 by 85 by 11 feet in size and will have a capacity of 3,000 tons.

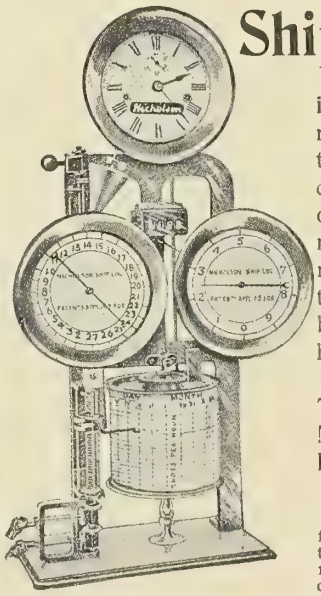
R. L. NEWMAN, naval architect, has removed his offices from 17 State street to 66-68 Broad street, New York, N. Y., and has formed a partnership with W. Merryweather, under the title of Newman and Merryweather, as naval architects, consulting engineers, and brokers, for the design and development of all classes of marine construction, surveying, and supervision of repairs.

THE B. F. STURTEVANT COMPANY, Hyde Park, Mass., is building a steam tunnel extending from the power plant of its new works to the most remote part of the manufacturing buildings, a distance of about 800 feet. This tunnel, which is of concrete construction, will not only accommodate all of the steam piping but also the electric wires for power, light, telephone, and other service, including oil, hot water, and other pipes.

MASON G. WORTH AND COMPANY, agents for John Brown and Company, Limited, makers of the Brown improved suspension furnaces, have removed their offices from the Witherspoon Building, to the Real Estate Trust Company Building, Philadelphia, Pa. It is claimed that the Brown furnaces are the only ones in the making of which the metal is not punished or distorted, and the only ones which are strengthened at the tops of the ribs.

W. K. MITCHELL AND COMPANY, Ellsworth street and Schuylkill river, Philadelphia, Pa., have recently removed their plant from Sixteenth and Washington avenue, Philadelphia, to the above location. The firm have issued an attractive illustrated pamphlet describing their new plant and their facilities for manufacturing flanges, fittings, valves of every description, iron, steel, copper, and brass pipe bends, recessed lap joints for steam, air, and hydraulic lines, steam separators, and high-pressure steam traps.

The Nicholson Perfected Ship Log



is the only log that accurately shows the speed of the moment of a ship, on a dial, and records this speed on a paper chart for every minute of the trip. It also registers the distance travelled. No line overboard. Placed in chart house or wherever desired.

THE NICHOLSON MARINE DISTANCE FINDER

Advantages Claimed:

The exact distance from any fixed point can readily be determined without any mathematical calculation. Anyone can easily learn to use it.

NICHOLSON SHIP LOG CO.

204 Superior Street, Cleveland, Ohio, U. S. A.

W. H. PIERSON, 421 Market St., San Francisco.

ROBT. SNOWDON, 107 High St., Boro, London, S. E., England.

ARTHUR BEHRENS, Fontanka, 52, St. Petersburg, Russia.

The Racine Boat Manufacturing Company, located at Racine, Wis., for twenty-two years, has removed its main office and works to Muskegon, Mich., where the company has completed an extensive plant.

The Loomis-Pettibone Gas Machinery Company, 52 William street, New York, N. Y., has increased its capital stock, and has been merged with the Holthoff Machinery Company of Milwaukee, Wis., under the name of Power and Mining Machinery Company. The company manufactures the Crossley gas engine, of which it states that there are over 50,000 in operation.

Palmetto packing is quite generally being used by engineers throughout the country. It is a braided packing, made in sizes of 1-4 to 2 inches in diameter, and each strand is saturated separately before braiding in a special preparation of oil and then in graphite. This packing does not get hard, is made expressly for steam, air, and ammonia use. A free sample of this packing, suitable for small valve stems, will be mailed to any engineer on application to the manufacturers, Greene, Tweede and Company, 19 Murray street, New York, N. Y., by referring to Marine Engineering.

The Lunkenheimer Company, Cincinnati, Ohio, maker of superior brass and iron steam specialties, reports that owing to the unprecedented and growing demand for its specialties it has again greatly increased its facilities and is now in position to guarantee reasonably prompt shipments. It also reports, through its foreign branches, an increasing export demand for its specialties, and informs us that it will shortly place some new specialties upon the market, which will be contained in a very complete catalogue to be issued in the course of a few months.

Mr. John Livingstone, Montreal, Canada, recently addressing the New York Railway Club on the subject of staybolts, stated that the concentrated inflow of air through hollow bolts saves the ends at the inside of the fire box from burning, lessens the expansion of the bolt at the inner sheet, and the vibrating strains on the inside of the outer sheet. By not resisting the expansion of the sheet with counter expansion in the bolt, the danger of crystallization is lessened in the inside sheet of the fire box. This is not the case with solid or drilled bolts. Mr. Livingstone stated that for four or five years hollow staybolt iron had been subjected to tests which no ordinary or crystallized iron could endure.

The Lawrence Machine Company, Lawrence, Mass., has sold to the St. Joseph Water Works, St. Joseph, Mo., a 16-inch centrifugal pump having a capacity of 10,000,000 gallons of water per day. This pump will be directly connected to a Lawrence vertical cross-compound engine. This company has also closed the contract for a complete sewage pumping plant for the town of Hudson, Mass. The contract includes two Lawrence special shaft sewage pumps each having a capacity of 1,000 gallons per minute, together with a vertical shaft alternating-current electric motor, with the necessary transformers and devices for automatically starting and stopping the pumps and motors.

The France Packing Company, Tacony, Philadelphia, Pa., has secured the entire order to pack the piston rods of all engines in the rapid transit subway power house, New York, N. Y., with its "Steam Stopper" metallic packing. The company states that its plan to enable engineers to equip themselves with every tool they require, ranging from a monkey wrench up to a steam indicator, without sacrificing their own or their employers' interest, has proved an entire success judging from the numbers who are availing themselves of it. Some time ago the company placed on the market a new high-pressure packing ring, made of the finest long-fibre asbestos yarn, and spun with a metallic wire. It met with such success at the beginning that a number of railroads have adopted it exclusively for use on their locomotive air pumps. The 1904 catalogue, which will be one of the most complete in its line, is ready, and may be had for the asking by readers of this magazine.

"Throw Away Your Glue Pot"

WHY have the smell of boiling glue around you all day, and the waste and expense of boiling dry glue, when you can for less money use

ARMY AND NAVY LIQUID GLUE?

NOT A FISH GLUE but a pure hide and sinew glue in liquid form.

THE GLUE OF THE 20TH CENTURY

will do twenty-five per cent. more work than a fish glue. No smell. No dirt. Always ready for use.

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" 21, L. L. Miller, 306 E. Grove St., Vicksburg, Miss.
" 23, W. R. Lewis, 213 East Front St., Jeffersonville, Ind.
" 24, Jos. B. Flach, 327 N. Fourth St., Paducah, Ky.
" 26, T. H. Kirkbride, 910 East Columbia St., Evansville, Ind.
" 27, L. C. Schwall, 518 S. Madison St., Bay City, Mich.
" 30, E. R. Humphrey, 239 Water St., Pittsburg, Pa.
" 33, James J. Waters, 283 Hudson St., New York city.
" 35, Edward Brady, 36 East St., San Francisco, Cal.
" 36, Joseph Thomas, 57 Sea St., New Haven, Conn.
" 37, H. E. Beard, 1741 Huron St., Toledo, Ohio.
" 38, W. H. Collier, 73 Starr Boyd Building, Seattle, Wash.
" 39, Fred. J. Thompson, 138 W. 17th St., Erie, Pa.
" 40, Charles Drouet, 1003 Ave. I, Galveston, Tex.
" 41, Samuel Shaver, 49½ 1st St., Portland, Ore.
" 42, J. B. Sloan, 810 Spearing St., Jacksonville, Fla.
" 43, Thos. J. Coyle, 627 Superior St., Port Huron, Mich.
" 44, George Layman, 515 Cypress St., Manistee, Mich.
" 45, Jas. A. Rourke, 708 East Bay St., Savannah, Ga.
" 46, D. W. Farrell, Clayton, N. Y.
" 47, Norman Rains, 804 East Spruce St., Sault Ste. Marie, Mich.
" 48, Carl V. Hart, 425 Perry St.; Sandusky, O.
" 51, Henry S. Connell, 12 Ransom St., Muskegon, Mich.
" 53, Harry Stone, P. O. Box 445, Marine City, Mich.
" 55, J. A. McDougall, P. O. Box 123, Cheboygan, Mich.
" 57, E. B. Meeker, 71 Abeel St., Kingston, N. Y.
" 58, E. Capers Haselden, P. O. Box 31, Georgetown, S. C.
" 59, W. M. Miller, Box 36, E. Boston, Mass.
" 62, N. S. Lawrence, 30 Conn. Ave., New London, Conn.
" 63, Willard Spencer, Str. Quackenbush, A. & T. St. Co., Albany, N. Y.
" 65, W. C. Palmer, c. o. Consumers' Coal Co., Charleston, S. C.
" 67, Jas. K. Dole, Saugatuck, Mich.
" 70, Charles T. Smith, 109 12th St., Astoria, Ore.
" 72, Thomas Navagh, 40 Lake St., Oswego, N. Y.
" 73, Ed. M. Donahue, 1308 Cherry St., Green Bay, Wis.
" 75, Frank D. Capron, Alexandria Bay, N. Y.
" 76, Orson Vanderhoef, Grand Haven, Mich.
" 77, John P. Hall, 1215 Huron St., Manitowoc, Wis.
" 78, J. P. Burg, 366 Lake Ave. South, Duluth, Minn.
" 80, R. P. Cook, 46 Elm St., Albany, N. Y.
" 81, Jas. L. Sweeney, 204 E. Saragossa St., Pensacola, Fla.
" 82, Fred H. Gowell, 427 Middle St., Bath, Me.
" 84, Jas. H. Kopf, 308 Adams St., Mobile, Ala.
" 85, Samuel K. Kissack, 442 State St., Alpena, Mich.
" 86, S. A. Smith, 737 Menekannee Ave., Marinette, Wis.
" 87, Geo. B. Milne, 237 W. Canfield Ave., Detroit, Mich.
" 88, C. O. Chapman, S. B. Canal, Sturgeon Bay, Wis.
" 89, L. O. Willix, 89 Elizabeth St., Ogdensburg, N. Y.
" 91, R. Davidson, 17 Fairfield Ave., Har. Sta., Ashtabula, O.
" 92, H. E. McArthur, 16 Abstract Bldg., Saginaw, Mich.
" 93, M. E. Davis, 929 D St., N. W., Washington, D. C.
" 94, George R. Jones, Box 222, Washington, N. C.
" 95, P. J. McMahon, P. O. Box 199, Key West, Fla.
" 100, Thos. F. Sullivan, Honolulu, H. I.
" 101, J. K. Cotton, Box 765, Norfolk, Va.
" 102, Fred W. Linsemeyer, 210 Clinton St., So. Haven, Mich.
" 103, A. E. Pittman, P. O. Box 378, Newbern, N. C.

TRADE PUBLICATIONS.

The Carlisle and Finch Company, 229 East Clifton avenue, Cincinnati, Ohio, is distributing a handsome calendar calling attention to search light projectors, for use on yachts, launches and steamships.

James H. Tarr, Gloucester, Mass., is mailing a calendar with a handsome marine picture representing two full-rigged ships in imminent danger of collision, and entitled "A Close Call." The catalogue states that Mr. Tarr is a manufacturer of copper paint, marine iron paint, etc.

The Crandall Packing Company, Palmyra, N. Y., is mailing an illustrated catalogue of steam, ammonia and hydraulic packings. The company manufactures a large line of packings for all purposes, among which may be mentioned special marine packing, ammonia ring packing, ammonia spiral packing, expansion ring packing, made for both hot and cold water, expansion ring steam packing, both flat and spiral, high pressure packing in coils and rings, hydraulic coil and ring packing, red core piston packing, sectional ring packing for hot and cold water and steam, asbestos sheet packing, steam hammer packing, and throttle valve packing. In addition the company manufactures many other engineering specialties, such as asbestos rope, asbestos rubber tape, gaskets of many varieties, hose, and rubber belting. The advantages claimed for the Crandall packings are that they are made from special material selected under the company's supervision, that they are lubricated by its patent cold oil process, that they are thoroughly tested to stand the extreme heat and pressure of stuffing boxes, and that they will not harden, blow out, melt or gum the rod.

The Lackawanna Motor Company, 51-61 Letchworth street, Buffalo, N. Y., is sending out a catalogue illustrating and describing marine motors, automobile motors, reversing devices, clutches, and transmissions. The Lackawanna motors operate on the two-cycle principle. Numerous impulses, one in each cylinder every revolution of the shaft, give great flexibility of speed, 250 to 2,000 R. P. M. being produced. It is stated that the Lackawanna motors develop more power for their weight than any motors on the market, and that the absence of springs, gears, cams, levers, valves and push rods makes them simple, reliable and long-lived. The jump spark system of ignition is employed, which it is said is very economical with the electric supply. The bearings are of ample dimensions, are lined with a special bearing metal and are reamed to size. Crank shafts are of forged steel, the connecting rods being of bronze. The catalogue states that the marine motors develop their rated horsepower at 500 R. P. M., but are capable of running at higher or lower speed as required. The marine outfit includes motor with base for placing in boat (or brackets if preferred), carburettor, circuit breaker, spark plugs, grease cups on main bearings, muffler, starting crank, pump, cylinder oiler, ball bearing thrust, and couplings bored to suit shaft as ordered. It is claimed that the reversing device used in connection with the marine motors obviates the necessity of reversible blade propeller, or reversing gear. The motor is wired in the usual manner as to batteries, spark coil, etc., with a ground wire running to a handle which operates on a notched segment and shifts the spark. On each end of this segment is a fibre insulating piece so that when the handle is at either end the circuit is broken. On the flywheel is a governor composed of a spring and contact point which rests on a metal ring insulated from the shaft when motor is at rest. As the speed increases this contact point is thrown away from the ring by centrifugal force. By this governor a ground is produced as the motor slows down, and by throwing the handle over in the opposite direction the motor is reversed by premature ignition, in other words giving a spark before the piston is up.

When writing to advertisers please refer to MARINE ENGINEERING.

The France Packing Company, Tacony, Philadelphia, Pa., has issued an illustrated catalogue describing metallic and fibrous packing. The company makes high pressure marine packings, ammonia packings, spiral piston and valve rod packing, gum core packing, square braided flax packing, water proof hydraulic packing, asbestos metal packing, asbesto-metallic sheet packing, gaskets, and other engineering specialties. The piston rods of the New York subway engines are equipped with France metallic packings.

The Lozier Motor Company, 1 Broadway, New York, N. Y., states in the February issue of *The Propeller,* which it publishes, that it has been engaged in the business of manufacturing steel products of automatic machinery for eighteen years, and that its engine plant at Plattsburg, N. Y., is the largest and best equipped plant in the world devoted to the manufacture of marine gasoline engines. In New York City the company has boat works where boats of special design are built in any size from sixteen to ninety feet in length. Regarding the successful building of marine gasoline engines, the company states that one of the first essentials is a perfect casting. Every Lozier casting is made in the company's own foundry by men who thoroughly understand the particular requirements of castings designed for marine work. Among the advantages claimed for the Lozier engines are absence of noise, coolness of the engine, automatic oiling, absence of odor, absence of vibration, reliability and speed control. Copies of *The Propeller* will be sent free to any readers of Marine Engineering.

The Buffalo Gasoline Motor Company, 1280 Niagara street, Buffalo, N. Y., is issuing an exceptionally handsome catalogue illustrating and describing marine gasoline motors. The company states that its motors contain solid one-piece steel forged crank shafts, and mechanically operated inlet valves, thus assuring a regular supply with a steady measured impulse, and producing regular speed and reliability. All motors are equipped with metal enclosed bases with detachable panels, so that access to all parts is easy. Solid steel forged valves are used and there are five heavy bearings in the base of the motor, assuring firm joints for crank shaft. Motors are completely water-jacketed, including head and valves. There is no packing except on the water jacket plate. All four cylinders are fed with a carburettor through one inlet casing. Special attention is given to making pistons and pistons rings fit. These, after being turned, are split, turned and ground to proper size, thus assuring perfect compression and a true circle. Motors are equipped with the make and break, or the jump spark, as the purchaser prefers.

The Picher Lead Company, Tacoma Building, Chicago, Ill., is mailing an illustrated pamphlet called "The Story of Picher Sublimed White Lead." The pamphlet opens with an "Inventor's Prologue," by E. O. Bartlett, the general manager of the company, telling how the idea of subliming white lead with fire and catching it in bags occurred to Mr. Bartlett. It is said that the idea that white lead could be produced direct from the ores without tan bark, manure, acetic acid, or any of the familiar methods, was received with incredulity, but that all problems were finally solved and the project carried to success. The sulphide ore of lead (galena) is heated to the sublimation point and the heated vapors, taking up oxygen from the air, are transformed from the sulphide to the oxy-sulphide of lead. It is stated that "the durability of paint is in direct ratio to the percentage of oil it absorbs and carries to the painted surface, and to the chemical stability of the pigment contained." It is claimed that Picher sublimed white lead is an absolutely stable compound of lead, which without any chemical reaction absorbs very large proportions of oil. Full details are given of the process of manufacture, and the results of tests and comparisons with other paints. The pamphlet will be mailed upon application.

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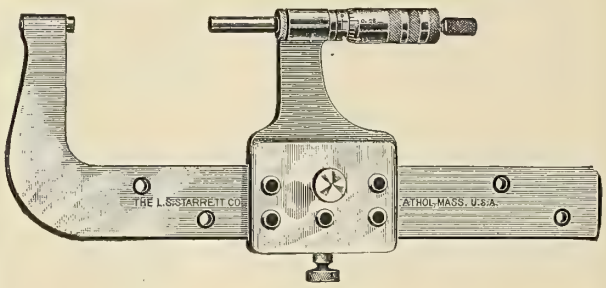
Six Inch Micrometer

will measure round work to 4½ inches and flat work to 6 inches. It weighs 21 ounces and is rigid and accurate.



IT is sold in a neat leatherette case, and is a most desirable instrument for every engineer and machinist to have. . . .

Send for our FREE CATALOGUE No. 17L, which tells of all the STARRETT TOOLS.

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A NEW THROTTLE VALVE

Powell's "Titan" and "Giant"

FOR LAUNCHES, STEAM CARRIAGES, AUTOS, ROAD ENGINES, ETC., ETC.

NO FRICTION

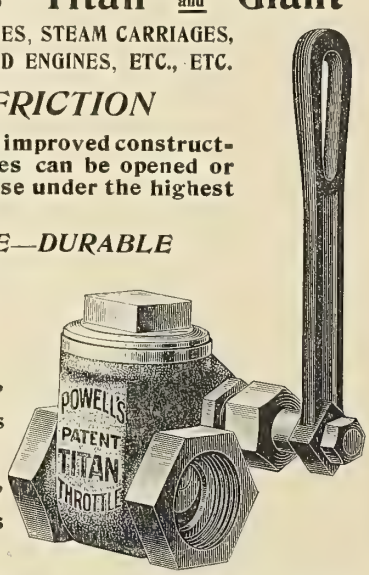
By means of improved construction the valves can be opened or closed with ease under the highest pressure.

SIMPLE—DURABLE

ALL PARTS MADE TO GAUGE

The "Titan" for 175 pounds pressure.

The "Giant" for 350 pounds pressure.



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Everything in the steam line for the boiler and engine room.

Fully Illustrated in our Catalogue.

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New York Agent: H. H. BEALS, 51 Cliff St.

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THERE is no "dead reckoning" in the matter of **Dixon's Graphite Cup Greases.**

You are getting the best friction-reducing combination that science and skill can produce and following the straight course for keeping bearings and pins cool.

Booklet 75-I describes our greases. Samples upon request.

JOSEPH DIXON CRUCIBLE CO.
Jersey City, N. J.

The Nicholson File Company, Providence, R. I., will send free upon application a booklet entitled "File Filosophy," which contains much information of value to users of files and rasps.

The New York Central and Hudson River Railroad Company, New York, N. Y., is mailing an attractive illustrated folder calling attention to the advantages of using its line to the coming World's Fair at St. Louis. A ground plan of the fair grounds is given, together with illustrations of the buildings, and a railroad map showing the route of the New York Central and its various connections. No one contemplating a trip to the World's Fair should fail to write for this folder.

Alexander Hynd, Western Reserve Building, Cleveland, Ohio, is mailing a folder describing Sturrock patent smoke consuming furnace bridge walls, for marine and stationery engines. It is stated that the Sturrock wall is in use on the foremost steamship lines of the United States and Great Britain. Among the special advantages claimed are: facility of removing and replacing bridge walls for inspection and when laying up; that they can be removed without destroying any part of the bridge, and replaced without requiring renewals; facility in cleaning fires, as no clinkers adhere to the bridge wall; better combustion of fuel and large reduction in the emission of black smoke, with resulting economy; that they will not twist or warp and will last for years.

The Monash-Younker Company, 43 Centre street, New York, N. Y., is distributing a folder describing automatic air valves.

The Universal Safety Tread Company, 45 Broadway, New York, N. Y., is mailing an attractively printed calendar calling attention to its safety treads for stairways, yachts, steamboats, elavator landings, etc.

The Veeder Manufacturing Company, Hartford, Conn., is mailing a booklet describing revolution counters. The company states that its counters are suitable for any purpose requiring a small, light and accurate instrument.

The Rudder Publishing Company, 9 Murray St., New York, N. Y., is mailing a catalogue of books and nautotypes for a yachtman's library. The ON and HOW-TO series of books are of interest to yachtsmen and amateur boatbuilders of all classes.

The Standard Tool Company, Cleveland, Ohio, is mailing a calendar calling attention to its twist drills, milling cutters, reamers and taps. The company also makes sockets, emery wheel dressers, drill chucks and other tool specialties.

The H. W. Johns-Manville Company, 100 William street, New York, N. Y., is distributing samples of asbestos used in making curtains for theatres and for other purposes. No. 6193 is interwoven with brass wire. This cloth is fire-proof and will not crack when water is turned on while very hot.

E. Stutz, 54 Front street, New York, N. Y., announces that he is now in a position to supply thermit from stock in New York, and will, upon application, mail pamphlets giving instructions for the use of the material, so that any intelligent mechanic can be made acquainted with the thermit process of welding cast iron or steel.

The Binsse Machine Company, Newark, N. J., is mailing its illustrated catalogue No. 3 describing horizontal boring machines. It is stated that for drilling and boring demanding accuracy the horizontal machine excels. The work table has three movements, one in the verticle and two in the horizontal plane. When the work is set vertically, the table is moved crosswise and lengthwise until the horizontal setting is found. No blocking is required. The boring bar slides within the main spindle and revolving with it can be handled with ease. It can be used with an attached boring head for holes larger than its own diameter, while for drilling smaller holes stub bars are employed with inserted cutters or boring heads, or special cutting tools of any description, all of which are held in the end of the large bar. The bar has three varieties of feed; it can be advanced a fraction of an inch to try the cut, or it can be drawn back to measure the bore at the rate of a foot for each turn of the hand wheel. The power-feeds cover all requirements from drilling to broad cut finishing. This company also manufactures leveling jacks which it is said are indispensable in every shop producing scraped surfaces.

WALWORTH MFG. CO.
TOOLS and SUPPLIES for STEAM WATER and GAS USERS
BOSTON MASS.

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Specialty of **BRASS VALVES** and Fittings for Marine Construction

Extra Heavy Valves, Bent Pipe and Fittings for High Pressure Work

SOLE MANUFACTURERS OF
WALWORTH FLANGED—OVER PIPE JOINT
Which does not Weep under heavy pressure

OUR BOOK CONTAINING "TABLES OF DIMENSIONS" OF WALWORTH GATE VALVES, FLANGED FITTINGS, FLANGED OVER PIPE JOINTS, WROUGHT IRON BENDS, ETC., should be in your draughting room.

The Bullock Electric Manufacturing Company, Cincinnati, Ohio, chooses Thomas A. Edison for the subject of the sketch on the back of its February card calendar. A brief resumé of his life and inventions is given, together with a portrait. The calendar is handsomely designed in several colors, and is suitable for desk use.

The Delaware Marine Supply Manufacturing Company, Wilmington, Del., is mailing a card catalogue calling attention to its various marine specialties. There are fifteen cards attractively printed and fastened together, and describing port lights of various kinds, deck lights, deck scuttles, ventilators, door handles, butts, rail sockets, hinges, and pulleys. There are numerous illustrations.

The Philip Carey Manufacturing Company, Lockland, Ohio, is mailing an abstract of a paper entitled Steam Pipe Covering and its Relation to Station Economy, which was read before the twenty-third convention of the Association of Edison Illuminating Companies. The paper gives the results of a test made before awarding the contract for covering the steam pipes in the Manhattan Railway Company's power house in New York. Diagrams and tables are given, showing the relation between thickness of steam pipe covering and total expense for various lengths of life, etc. As a result of the test, Carey's 85 per cent. carbonate of magnesia covering was adopted.

The Crocker-Wheeler Company, Ampere, N. J., is mailing its bulletin No. 40, entitled Crane Motors. Descriptions and illustrations are given of crane motors of various sizes and designs. It is stated that the manipulation of traveling cranes is a service to which electric motors are particularly well adapted. The power is easily transmitted any distance and with little loss, the motors require a small amount of space, they can be readily attached to the various parts of the crane, and can be instantly and conveniently controlled by the operator. The use of separate motors for the various movements of the crane affords a means of performing these movements rapidly and simultaneously, thus saving much time.

Panhard & Levassor, whose American branch is at 230 West 13th street, New York, N. Y., are mailing a catalogue giving diagrams showing the sectional elevation and accommodation plan of a 31-foot auto-boat equipped with one of their 15 H. P. four-cylinder motors. The hull of the boat was built by the Electric Launch Company, Bayonne, N. J., and was on exhibition at the Sportsmen's Show, in New York, last month. The frame is of light oak. The double planking is of elm and mahogany. The outside planking, decks and interior are handsomely finished in natural mahogany. The automobile type of seat is provided, giving a capacity for seven. The metal work of the hull is of brass and copper. Total weight of boat with engines, 1,150 pounds. Automobiles are also illustrated and described in this catalogue.

The second edition of Catalogue No. 115, the general condensed catalogue of the B. F. Sturtevant Co., Boston, Mass., is now ready for distribution. This catalogue describes and illustrates a number of new apparatus manufactured by this company, among which are: a new type of hand-blower; several new types and sizes of forges; new sizes of vertical single and double engines; a new type of enclosed vertical compound engines; new type of semi-enclosed bipolar and 4-pole motors; new sizes of generating sets with vertical compound engines; factory equipments, such as bench-legs, pattern storage shelf brackets, electric hoists, cast iron sinks, trench coverplates, etc.; industrial railway equipments such as cars, a description of the various Sturtevant systems, such as heating and ventilating, special ventilating, drying, conveying and mechanical draft systems.

BROWN OR BLACK

May be desirable colors; but when one selects white or a tint, he does not want brown or black.

ZINC WHITE

Is the only white pigment that holds its color in marine work—therefore ZINC WHITE is the only available pigment for white or tints on ships or boats.

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We do not grind zinc in oil. List of manufacturers of zinc white paints will be furnished on request.

CONDENSER TUBES

last longest if made of

"BENEDICT-NICKEL"

ELECTROLYSIS is positively resisted because "Benedict-Nickel" is an alloy of nickel and copper.

CORROSION is impossible, as the tubing is so perfectly homogeneous.

Our treatise on "Electrolysis of Condenser Tubes" is very valuable and costs you nothing. Send for it.

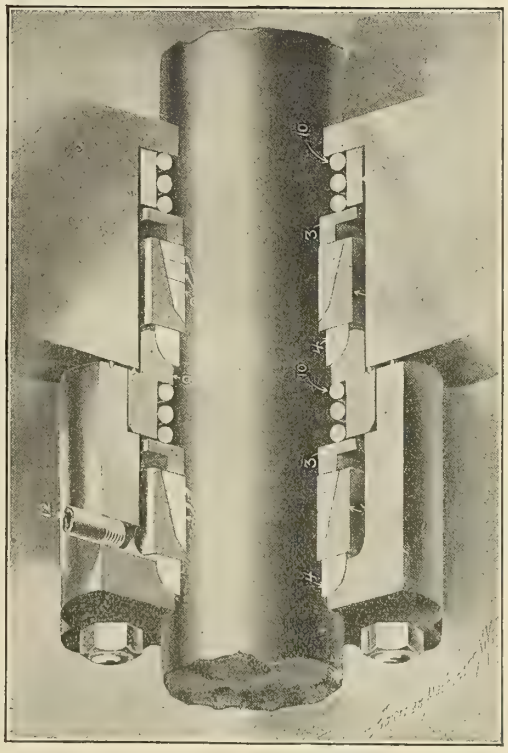
BENEDICT & BURNHAM MFG. CO.
WATERBURY, CONN.
New York, 253 Broadway Boston, 172 High St.

The Marine Iron Works, Chicago, Ill., is distributing catalogue No. 16. This catalogue illustrates and describes triple expansion marine engines, compound marine engines, solid back type, heavy service marine engines with single cylinders, double cylinder marine engines, open column frame marine engines and machinery, condensing apparatus, paddle wheel machinery, water back marine boilers, propeller wheels, pumps, capstans, steering wheels, search lights, etc. The company builds all of its own marine boilers. Diagrams and illustrations are given of Scotch marine boilers, horizontal fire-box marine boilers, Clyde marine boilers, submerged tube vertical marine boilers, and of safety water tube boilers. The company makes a specialty of paddle wheel machinery, and machinery of all kinds for river and lake boats. A special pamphlet on river navigation is issued, which will be sent on application to those interested.

The American Steam Pump Company, Battle Creek, Mich., is mailing an illustrated catalogue describing Marsh boiler feed pumps, yacht pumps, plunger pumps, and other pumps. The Marsh live steam actuating and governing valve and other valves are also described.

Wyman & Gordon, Worcester, Mass., manufacturers of drop forgings, in the last issue of their brief monthly biographies, tell of the life and inventions of Richard Arkwright. The company has already published biographies of the following engineers, which, with the exception of a few that are out of print, will be sent free upon application: James Watt, Matthew Boulton, Robert Fulton, George Stephenson, James Nasmyth, Sir Henry Bessemer, Sir William Siemens, Alfred Krupp, Elias Howe, John Ericsson, Sir Joseph Whitworth, Benjamin Franklin, John Fitch, Oliver Evans, John Stevens, Eli Whitney, Thomas Blanchard, Peter Cooper, Alexander L. Holley, William R. Jones, James B. Eads.

United States Metallic Packing



Class No. 1 Packing

¶ While it is in fact a *Double Packing* with two sets of rings on the rod—(one in reserve should the other fail)—still *friction* is reduced to a minimum and hot rods are unknown where it is used.

¶ Renewals cost comparatively little—are easily made and last a long time.

* * *

Catalog and Price List on Application.

The United States Metallic Packing Company

Main Office and Works: 427 No. Thirteenth St., Philadelphia, Penna.

Chicago, 509 Great Northern Building

Seattle, MORAN BROS. San Francisco, W. H. PIERSON

Warren Webster & Company, Camden, N. J., are mailing a card calling attention to Webster feed-water heaters and purifiers. It is stated that 1,250,000 H. P. are in use.

Mason G. Worth & Company, Real Estate Trust Building, Philadelphia, Pa., are sending out a leaflet calling attention to wire rope for hoisting, rigging, hawsers, switching; and to crucible, plough or open hearth steel, plain or galvanized.

The C. O. Bartlett & Snow Company, Cleveland, Ohio, is mailing a catalogue illustrating and describing interlocking shoulder bearing chain belts. General catalogue No. 7, illustrating and describing detachable chain belts, elevators, conveyors, steam and direct heat dryers, gears, and other machinery, will be sent upon application.

Graphite, published by the Joseph Dixon Crucible Company, Jersey City, N. J., calls attention in the February issue to Dixon's graphite pipe-joint compound. There is also an article telling of an engineer's first experience with graphite, describing how, with the aid of this substance, he was enabled to keep the machinery running without waiting for a hot box to cool.

The Wm. Powell Company, Cincinnati, Ohio, is distributing folders describing its engine and boiler room specialties, such as "Trojan" sight up-feed lubricators, cylinder oil pumps, glass engine oilers, and a new form of throttle valve. By a radical departure in the construction of the operating parts, the throttle valves are claimed to open and close without the slightest friction under the highest pressure.

The Leeds Marine Equipment Company, Bridgeport, Conn., Atlantic coast general agents for the Hercules Gas Engine Works, San Francisco, Cal., is mailing a folder describing the Hercules engines—marine, stationary, portable, and for hoisting purposes. It is stated that the Hercules Gas Engine Works are among the largest and best equipped in the United States, and that more than 6,000 of their engines are in operation. Duplicate parts are kept in stock at Bridgeport, and repairs can be made there. The Leeds Marine Equipment Company builds, repairs and stores yachts and working boats.

Thos. H. Dallett Company, York street and Sedgley avenue, Philadelphia, Pa., is distributing its illustrated catalogue describing pneumatic tools. Of the Dallett hammers it is stated that they are simple in construction, the piston and valve being the only moving parts; that the movement of the valve is lengthwise with the cylinder and in the same direction as the movement of the piston, thus eliminating the tendency of its being jarred off the seat by the impact of the hammer blow, and enabling the hammer to attain a very high rate of speed. A page is devoted to directions for the care of hammers.

The H. W. Johns-Manville Company, 100 William street, New York, N. Y., is distributing a folder calling attention to its asbestos roofing, and showing the following report of a government expert: Washington, D. C., July 29, 1903.—"The report of the supervising architect is to the effect that the sample of asbestos roofing offered by the H. W. Johns-Manville Company is distinctly superior to the others for the purpose under consideration, even if offered at a price somewhat in excess of the latter, and that the relative order of merit of the remaining samples is not sufficiently pronounced to justify any serious discrimination except in price."

GENERAL MACHINE WORK

Model and Experimental Work
Plans and Specifications Prepared
Prompt Repair Work

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BUILDERS OF SHIPS, Yachts, and Launches are often in need of Superintendents and other employees down the line, including engineers, draftsmen, foremen, machinists, patternmakers, foundrymen, fitters, etc.

ENGINE AND BOILER Builders frequently have similar vacancies which they are unable to fill satisfactorily or promptly.

SHIP AGENTS AND OWNERS may want licensed masters or pilots, engineers or assistants, or other help for shore or sea duty.

YACHT AND LAUNCH owners have great difficulty in securing masters, engineers, navigators, and other competent help.

To bring employee and employer together is the sole purpose of Marine Engineering Employment Bureau.

First class men seeking employment will find this Bureau of great help in securing positions because of its confidential relations with employers.

Employers have, through this Bureau, the advantage of being brought into communication with men of experience and ability who would otherwise be unknown to them, and whose records have been investigated, and, at the same time, are saved the bother of being overwhelmed by applications for positions as soon as it becomes known that there is a vacancy.

For positions of responsibility the services of this Bureau are particularly valuable.

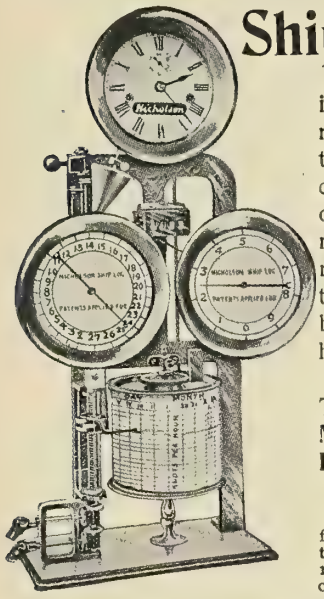
For full particulars address:

Marine Engineering Employment Bureau,
309 BROADWAY, NEW YORK.

THE STORY OF PHOEBE SNOW.

If you have ever taken a railroad trip you will enjoy the "Story of Phoebe Snow," which describes in a series of dainty pictures the experiences of a pretty girl who went to Buffalo. The illustrations are in seven colors, each reproducing a design of the girl in white which the Lackawanna Railroad has made so familiar in the last few months. The booklet has a particularly pleasing cover and will afford considerable amusement beside giving information which every traveler ought to know. It will be sent in response to request, accompanied by two cents in stamps, to T. W. Lee, General Passenger Agent, New York City.

The Nicholson Perfected Ship Log



is the only log that accurately shows the speed of the moment of a ship, on a dial, and records this speed on a paper chart for every minute of the trip. It also registers the distance travelled. No line overboard. Placed in chart house or wherever desired.

THE NICHOLSON MARINE DISTANCE FINDER

Advantages Claimed:

The exact distance from any fixed point can readily be determined without any mathematical calculation. Anyone can easily learn to use it.

NICHOLSON SHIP LOG CO.

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ROBT. SNOWDON, 107 High St., Boro, London, S. E., England.
ARTHUR BEHRENS, Fontanka, 52, St. Petersburg, Russia.

United Harbor No. 1, American Association of Masters and Pilots of steam vessels, Battery Park Building, New York, N. Y., has issued its official souvenir book and log. A brief history of the origin of the association and what it has accomplished is given.

The Joseph Dixon Crucible Company, Jersey City, N. J., is mailing a card calling attention to its silica-graphite paint, stating that it was the first graphite paint made, and claiming it to be the best preservative for steel and iron construction.

The Crosby Steam Gage and Valve Company, Boston, Mass., is sending out a folder describing pop safety valves. The company states that its safety valves are automatic, certain in action, prompt in opening and closing at the required pressure, and that they relieve the boiler rapidly with the smallest possible loss of steam.

REVISED AND ENLARGED EDITION

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SEND FOR MARINE ENGINEERS' CATALOGUE.

THEO. AUDEL & CO., *Educational Book Publishers* 63 FIFTH AVENUE NEW YORK

BUSINESS NOTES.

THE MARINE IRON WORKS, Chicago, Ill.—A contributor writes as follows, with an appreciation of the facts set forth for prospective buyers of marine machinery: "There is a feature in connection with this marine engine business in the small and medium-size work (20 to 500 H. P.) that you will understand, viz.: If a concern which for a number of years has devoted its attention exclusively to the work, taking a real interest in it, and keeping the more or less old patterns as nearly modern as such a procedure would permit, is totally wiped out by fire and all of the patterns destroyed, you can realize that an ideal opportunity is offered for either quitting entirely or starting fresh. If the latter plan is adopted, it presents the advantage of incorporating into new patterns all that was best in the old, together with many good features which the old designs would not permit." It was this latter plan that the Marine Iron Works of Chicago selected and has been following for the past two years, and although it has been "hard sledding" at times and at first was a tremendous loss, it is proving a positive benefit. "To-day the company's line of engine patterns," he writes, "especially in compounds and triple expansions, is at least 100 per cent. better and more complete than those that went up in smoke two years ago. If these facts were known to a larger proportion of the intelligent buyers of such machinery, it would be of value to all parties concerned, not excepting the users. Every one familiar with marine machinery, within the range of work referred to, knows that no concern in the country can very well afford to deliberately destroy all patterns, and it requires some real calamity to compel it to make an entirely new and complete line. It might seem possible for a newly organized company to do this, but it could not have had that associated experience so necessary in discussing and deciding upon seemingly minor but really important details of construction."

THE AMERICAN AND RED STAR LINES are distributing a circular regarding service for the coming season, from which the following is taken: The sailing day of the American Line steamships from New York has been changed from Wednesday at 10 A.M. to Saturday at 9:30 A.M. Eastbound the steamers will call at Plymouth (England) and Cherbourg (France) to land passengers and mails, and will then proceed to Southampton. Passengers will have the option of disembarking at any one of the three ports, where special trains will be awaiting to convey them to London or Paris. This improved service will be maintained by the four large twin-screw express steamships *St. Louis, St. Paul, New York* and *Philadelphia.* These steamships have recently undergone an unusually thorough rehabilitation, and in every department they are in the highest degree of perfection. The Red Star line for over 33 years has been synonymous with regularity and punctuality. The steamers of this line have carried over a million passengers without a serious accident. This record has kept this company in the front rank of popularity with ocean travelers. The steamers sail from New York on Saturdays at the fixed hour of 10:30 A.M. and from Antwerp also on Saturdays, but at hours governed by the state of the tide. The present fleet is composed of the large new twin-screw steamships *Finland, Kroonland, Vaderland* and *Zeeland,* each of 12,760 tons. These vessels, while not "ocean greyhounds" in the strict sense of the word, are of the best type of modern passenger ships. Except in the one point of speed, they are the equal of the finest ships afloat and will enable persons to enjoy at moderate expense all the luxuries of the fastest transatlantic flyers. All the steamers of both lines are fitted with the Marconi system of wireless telegraphy, a convenience which is appealing more and more to the transatlantic traveler. Special arrangements have been made to furnish by wireless telegraph from Nantucket and Poldhu the latest news, which appears in the newspaper published on board.

The Edson Manufacturing Company, 255 Atlantic avenue, Boston, Mass., reports that it has applied many new ideas in the manufacture of its steering gears, diaphragm pumps, etc. The pony Meteor racing gear for 25 or 30-foot yachts is said to be in great demand among yachtsmen. The company makes marine appliances of all varieties.

Sheriff's Manufacturing Company, Milwaukee, Wis., reports an especially prosperous season, with a greatly increased demand for propeller wheels. The company states that up to date it has turned out 2,340 propeller wheels, ranging in size from 12 inches in diameter up to 13 feet. Most of the wheels are made of cast iron, but wheels up to 8 feet in diameter are made of cast steel.

American Steam Gauge and Valve Company.—Mr. P. H. Wilhelm, formerly representing the New York Car Coupler Company, the Washburn Car Coupler Company, the Buckeye Malleable Iron and Coupler Company, the Railroad Supply Company of Chicago, with headquarters at Atlanta, Ga., has accepted a position as railroad representative of the American Steam Gauge and Valve Manufacturing Company, Boston, Mass., with branch offices at New York, Chicago, Philadelphia and Atlanta, Ga. Mr. Wilhelm has spent the greater portion of his life in the actual railroad service and it will be remembered that, in 1893, he was, on the recommendation of the majority of the railroads, appointed division superintendent of transportation at the World's Fair in Chicago. After the close of that exposition, he took up the active business of railroad supplies, which he has followed up to the present time. Mr. Wilhelm has been very prominently mentioned for the position of superintendent of transportation at the St. Louis Exposition, but he prefers to remain in the active railroad supply business. The American Steam Gauge and Valve Manufacturing Company is believed to have the largest plant in the country devoted to the manufacture of steam and other gauges, safety valves, steam engine indicators, whistles and steam supplies in general, and being one of the oldest houses in this country in this particular line, Mr. Wilhelm will be able to keep up his reputation of representing one of the best houses in the country.

The Buffalo Feed-Water Regulator.—Mr. Robert Learmonth, 100 White street, Buffalo, N. Y., has patented a feed-water regulating device. The inventor has employed for its actuating power the expanding and contracting of a copper tube by being heated and cooled. The operation of heating and cooling is derived from the steam and water in the boiler in which it is desired to maintain a regular water level, and is applied as follows: When the water has reached the desired height in the boiler, the copper tube is filled with water, and as the water in this tube is much below the temperature of the steam in the boiler, the tube is cooled and therefore contracts. When the height of the water level has been lowered the tube is filled with hot steam, and the heat causes it to expand. The lengthening and shortening of the tube gives motion to a small valve. When this valve is closed, the steam pressure in the regulating valve is increased, forcing the valve to its seat and shutting off the supply of water to the boiler. When the valve is open the steam escapes, removing the pressure on the regulating valve, and allowing it to open and admit water to the boiler. It is stated that the invention will regulate the water supply in three different ways: by the supply of steam to the pump; by shutting off the surplus water from the boiler; by allowing the surplus water to waste away. This latter is accomplished by shortening or lengthening the upper connection about an eighth of an inch, and is all the alteration required. The device, it is said, not only regulates the supply of water but records its operation by sounding a whistle whenever the steam is allowed to escape. Full particulars upon application.

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NEW YORK OFFICE, 39 CORTLANDT STREET.

THE PHILIP CAREY MANUFACTURING COMPANY, Lockland, Ohio, has received an order from the United States government for 10,000 feet of magnesia covering and a large quantity of magnesia cement, for use at the New York navy yard. The company states that this is but one of many similar orders received from the United States government.

THE BOSTON AND LOCKPORT BLOCK COMPANY, 160 Commercial street, Boston, Mass., made the blocks for the *Minnesota* and the *Dakota*, recently built by the Eastern Shipbuilding Company, New London, Conn. These blocks are made from a special design, and incorporate all the latest improvements. The cargo blocks are of steel and the boat blocks have wooden shells. The total weight of the outfit for each ship is about twenty tons, and the value is about four times as much as the cost of blocks required for an ordinary four-masted ship. The capacity of the largest blocks is from forty to sixty tons each.

THE HELIOS-UPTON COMPANY, Peabody, Mass., has received an unsolicited testimonial from one of its customers regarding the action of a No. 200 recording thermometer during the recent cold weather. The chart of this thermometer is divided into days, hours, and degrees, and the temperature is traced in red ink by a pen run by clockwork. The temperature range during the first week of January was unusually great, and the changes very sudden. The thermometer in question was put out early on a Monday morning and immediately the temperature fell until Tuesday morning 30 degrees below zero was recorded. It then rose sharply until the same afternoon the chart showed a temperature several degrees above zero. These and other sudden fluctuations of temperature were accurately recorded, and form a permanent record which it will be interesting to keep for comparative purposes.

SPECIAL NOTICES.

Announcements under this heading will be inserted at the uniform rate of thirty-three-and-a-third cents a line. Lines average ten words each.

WANTED.—ENGINEERS AND SALESMEN to handle France "Steam Stopper" brands of metallic and fibrous packings as a side line. Good inducements to right party. Address,
T. France Packing Company, Tacony, Philadelphia, Pa.

If any reader of MARINE ENGINEERING has Volumes I. and II. for sale, will he please communicate with MANISTEE, care Marine Engineering.

Marine Engineering EMPLOYMENT BUREAU.

Full information regarding the purposes of this bureau, together with instructions regarding registration, etc., furnished upon application to MARINE ENGINEERING Employment Bureau, 309 Broadway, New York city.

All correspondence, concerning either vacancies, or situations wanted, is strictly confidential.

VACANCIES.

The Employment Bureau has in hand inquiries for men for positions as follows:

Anglesmiths.
Foremen of Boiler Shop.
Superintendent of Launch Works.

SITUATIONS WANTED.

We have applications registered for positions as follows, and the references of each applicant have been carefully investigated:

Boiler Makers.
Carpenters.
Chief Draftsmen.
Draftsmen, general hull and engine.
Engineer for gasoline launch.
Foremen of yard, machine shop, and joiner shop.
Licensed engineers, chiefs, and assistants.
Loftsmen.
Machinists.
Masters.
Oiler.
Purchasing agent.
Salesman.
Superintendents.

WM. T. BONNER AND COMPANY, 53 State street, Boston, Mass., report that Klinger reflex gauges and Wiltbonco gauge mountings are becoming very extensively used not only in the United States and foreign navies, merchant ships, ferryboats, and private yachts, but also in many of the stationary power plants. These gauges were fitted to all the boilers on the United States torpedo destroyers which recently sailed from Norfolk to the Philippines.

THE UNITED STATES GUTTA PERCHA PAINT COMPANY, Providence, R. I., has made arrangements with Malcolm L. Pitts to put on the market his green anti-fouling paint. Mr. Pitts has had charge of all the painting and finishing at the Herreshoff Manufacturing Company's plant, Bristol, R. I., for twenty-three years, and during that time this paint was made and used under his supervision. It is well known how successfully the bottoms of the Herreshoff boats have withstood the action of barnacles and of all sea growth. The United States Gutta Percha Paint Company also makes steamship blacks, white lead, and zinc, and other specialties for the shipping trade.

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3/8 in.
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5/8 in.
} **For Hand Holes.**

3/4 in.
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} **For Extra Large Joints.**

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" 95, P. J. McMahon, Box 199, Key West, Fla.
" 98, Bert Hamlin, 114 Exchange Place, New Orleans, La.
" 100, Jas. P. Lynch, Honolulu, H. I.
" 101, J. K. Cotton, Box 765, Norfolk, Va.
" 102, Fred W. Linsemeyer, 210 Clinton St., South Haven, Mich.
" 103, A. E. Pittman, Box 378, New Bern, N. C.

TRADE PUBLICATIONS.

The 1904 Model Gas Engines manufactured by the Mianus Motor Works, Mianus, Conn., are described in a concise folder, a copy of which will be sent to all inquirers.

The kerosene oil engines which are manufactured by the International Power Vehicle Company, Stamford, Conn., are illustrated and described in a four page folder which this company is sending to all who are interested in this kind of engine.

A fine view of the after section of the S. S. *Minnesota*, is shown on the mailing card issued by Joseph Dixon Crucible Company, Jersey City, N. J. The card states that the hull of this ship was primed with Dixon's Silica-Graphite paint.

The Phosphor-Bronze Smelting Company, Ltd., 2200 Washington avenue, Philadelphia, Pa., is distributing price list No. 22, which cancels all previous quotations. This company has just installed a new rolling mill, which has largely increased facilities for filling orders for phosphor-bronze and other alloys.

The Foos Gas and Gasoline Engines which are designed exclusively for stationary work, have a complete catalogue devoted to them, issued as No. 12 by the Foos Gas Engine Company, Springfield, O. Many illustrations 6 by 8 inches in size, show not only the design of the engine, but the detail of its construction and different applications.

A convenient pocket memorandum book will be sent free to all inquirers through Marine Engineering, by George N. Gardiner & Son, 53 South street, New York, N. Y. It contains a 1904 calendar, information regarding population of cities, together with tables of weights, measures, postal rates, and much other such information, in addition to oil sheets for protecting stamps, and diary for each day in the year.

The New York Sky Line is published as an advertisement by P. and F. Corbin, New Britain, Conn. It makes a very handsome picture, about 8 by 36 inches in size, and shows New York as seen from the North river, from the Washington building at No. 1 Broadway, to the New York Life Insurance building at 346 Broadway. We understand that copies of this picture will be sent to all inquirers who mention Marine Engineering.

The charging outfits manufactured by the Westinghouse Electrical Manufacturing Company, Pittsburg, Pa., for both electric launches and automobiles, are thoroughly illustrated and described in Circular No. 1061, just issued. Another publication just issued by this company, is folder No. 4006, which describes the Westinghouse auxiliary apparatus for railway equipments.

"Machine Tool Equipment" is the subject of a series of folders, issued by the Crocker-Wheeler Company, Ampere, N. J. These folders describe electric motors furnished by this company for operating machine tools in manufacturing plants of various kinds. Bolt cutters with motor drive; 24-inch motor-driven lathe, turret lathes with motor drive; milling machines with motor drives; boring machines electrically driven, and plate-bending rolls using Crocker-Wheeler motors, are among the examples described and illustrated in these folders.

"Marine Gasoline Engines" is the title of a 76-page catalogue, issued by the Charles A. Strelinger Company, Detroit, Mich. The catalogue describes in much detail, the various sizes of engines manufactured by this company, and gives a great deal of practical and valuable information regarding the general subject of explosive engines, together with detailed instructions as to selecting an engine, and particularly as to operating it when installed on a boat. Any reader interested in gasoline engines will find an immense amount of information in these 76 pages.

"Black Squadron Packing," as manufactured by the Cancos Manufacturing Company, 146 North Second street, Philadelphia, Pa., is the subject of several verses in a folder which this company is distributing.

The Branch Steam Trap, "the trap that made St. Louis famous," is illustrated and described in Steam Bulletin 10, issued by the National Oil Burner and Equipment Company, Holland Building, St. Louis, Mo.

"Hoists and Mining Machinery," operated by gasoline, naphtha, kerosene, and other oils, is the subject matter of Catalogue No. 45 B, issued by Fairbanks, Morse & Company, Franklin and Monroe streets, Chicago. It is neatly printed in two colors, and large illustrations are given of various applications of these engines for hoisting and mining purposes.

The Vulcan Iron Works Company, Toledo, O., which manufactures dipper dredges, steam shovels, etc., is sending to all inquirers without charge, a neat and convenient pocket memorandum book which contains in addition to a calendar and colored map of the United States, much information in the way of postage rules, population of cities, etc.

The launch propellers, reversing gears, deck lights, row locks, cleats, stanchion posts, mast plates, and other marine specialties manufactured by the Norwalk Brass Company, Norwalk, Conn., are thoroughly illustrated and described in the 1904 catalogue. A copy of this catalogue should be in the hands of every concern which has to do with small craft of all kinds.

"The House of Corbin" is the title of a beautifully printed book just issued by P. & F. Corbin, New Britain, Conn. As a specimen of printing it is one of the most beautiful we have ever seen. It contains fine portraits of all the men who have been connected with this firm, and gives a great deal of information regarding the hardware which it manufactures.

The various kinds of packing manufactured by the Crandall Packing Company, Palmyra, N. Y., will be found described in a complete and well-arranged catalogue of 54 pages which this company is now distributing. Every user of packing will want to send for a copy which will be sent gratis upon application. The catalogue is well illustrated.

The Toquet Marine Motor will be found fully described in the catalogue which is distributed by the Toquet Launch Company, Saugatuck, Conn. The pictures of the engine are large, showing fully its design, and each feature of the engine is described, so that the would-be purchaser can secure a most comprehensive idea of the several features of this engine. Copies are sent free to all inquirers.

Machine tools for shipyards and boiler shops will be found illustrated in great variety in a 28-page catalogue issued by the Hilles & Jones Company, Wilmington, Del., designated as Catalogue T. The catalogue is about 9 inches square and on each page are engravings of from one to four different types of machines. The printing is excellent and the catalogue one that should be on file in every yard.

"The Subject of Brick Drying" will be found discussed in a comprehensive manner in Catalogue No. 159, which is distributed by the American Blower Company, Detroit, Mich. The catalogue is handsomely printed and profusely illustrated, so that the subject matter is made very plain even to the uninitiated. A number of fine illustrations are given of large plants equipped with this company's drying system.

"Launches and Yachts" is the title of a handsomely published catalogue which the Electric Launch Company, Bayonne City, N. J., is distributing. It contains 120 pages very finely illustrated and printed. Launches and yachts in great variety are shown in the illustrations, and each type is described both in its construction as well as in its equipment, capacity, etc. Any one contemplating the purchase of a launch or yacht will find this catalogue of great value.

GEORGE WASHINGTON'S example for telling the truth is being well perpetuated by

The Starrett High Speed Indicator

which tells the exact truth about a shaft's revolutions. The working parts of this Indicator are encased, and the dial plate has two rows figures, reading right or left, as the shaft may run.

AN IMPORTANT IMPROVEMENT

applied to all our Indicators is the use of **Rubber Tips** for pointed or hollow centers on the hardened steel pointed spindles.

Send for our FREE CATALOGUE No. 17L, which tells of all the STARRETT TOOLS.

THE L. S. STARRETT CO., ATHOL, MASS.

CONDENSER TUBES

last longest if made of

"BENEDICT-NICKEL"

ELECTROLYSIS is positively resisted because "Benedict-Nickel" is an alloy of nickel and copper.

CORROSION is impossible, as the tubing is so perfectly homogeneous.

Our treatise on "Electrolysis of Condenser Tubes" is very valuable and costs you nothing. Send for it.

BENEDICT & BURNHAM MFG. CO.
WATERBURY, CONN.
New York, 253 Broadway Boston, 172 High St.

DIXON'S Graphite Cup Greases are compounded of pure flake graphite and high-grade greases.

The lubricating value of this mixture far surpasses that of any plain grease and is especially well adapted to the heavy duty of marine engines.

In six grades, described in Booklet 75-I. Samples upon request.

JOSEPH DIXON CRUCIBLE CO.
Jersey City, N. J.

Volume blowers and exhausters are briefly and concisely illustrated and described in a handsome brochure of 20 pages, issued by the Buffalo Forge Company, Buffalo, N. Y.

Every engineer will want to send for a copy of the little folder issued by James L. Robertson & Sons, 204 Fulton street, New York, N. Y., entitled "On the Only Unit of the Planimeter."

"The Specializing of Interior Telephone Apparatus" is the subject matter of Bulletin No. 1, issued by the Electric Gas Lighting Company, 195 Devonshire street, Boston, Mass. This catalogue comprises 32 pages, giving much information regarding different types of telephones and included are wiring diagrams.

The hydraulic leather packing, manufactured by the Detroit Leather Specialty Company, Detroit, Mich., has a special folder devoted it. The value of these packings for various marine uses, including use in steam tubes, will be appreciated. Copies of the catalogue may be had upon application.

Users of the sparking devices should send for a copy of the 1904 catalogue issued by the Remy Electric Company, Anderson, Ind., describing this company's ignition apparatus. The different types of magnetos are illustrated and each one described separately. This, together with other information on the subject, makes the catalogue of much value.

The Improved Cincinnati Air Compressor is the latest bulletin issued by the Laidlow-Dunn-Gordon Company, Cincinnati, O.

The Englehardt Collapsible Life Boat is illustrated and described in a neat folder issued by the Engelhardt Collapsible Life Boat Company, 305 Vernon Ave., Long Island City, N. Y.

The Dutton Engineering Company, Perth Amboy, N. J., is distributing a folder containing unsolicited testimonials from users of the gas engines and launches which this company manufactures.

H. B. Willson & Company, Eighth and F streets, N. W., Washington, D. C., are distributing a booklet giving much information regarding patents both domestic and foreign.

The Standard Pressed Steel Company, Twentieth and Clearfield streets, Philadelphia, is distributing a pocket-sized catalogue describing the hangers and other pressed steel specialties which it manufactures.

"The Steam Radiator," by "Bill Nye," is the title of an 8-page pamphlet being distributed by Warren Webster & Company, Camden, N. J. The wit of this author is too well known to need comment.

"'One Snap' Air Ports" is the subject of the latest booklet issued by the Delaware Marine Supply Company, Wilmington, Del. It comprizes 16 pages, and contains a number of illustrations of these ports and other marine specialties of this company.

The kerosene oil engines and the reversing friction clutch manufactured by the August Mietz Iron Foundry & Machine Company, 128 Mott street, New York, N. Y., are illustrated and described in a folder which this company has issued.

"Everything in the Indicator Line" is the caption of a hanger which James L. Robertson & Sons, 204 Fulton street, New York, are sending to all inquirers. On the hanger are a dozen or more illustrations of indicators and attachments.

A calendar for each month, leaving space for daily memoranda, is being distributed by the Crandall Packing Company, S. M. Hildreth, manager, 123 Liberty street, New York, N. Y. Readers of Marine Engineering who wish copies of this calendar sent each month need only to ask for them.

"Hotel Annunciator Practices" is the title of a booklet which is being distributed by the Electric Gas Lighting Company, 195 Devonshire street, Boston, Mass. It illustrates and describes a number of installations which the company has recently made, and gives considerable information on the subject of annunciators.

"Alternators" is the title of Catalogue No. 60 now being distributed by the National Electric Company, Milwaukee, Wis. The catalogue is neatly bound in green paper and is printed in colors. The text gives much information regarding alternating current machinery which every electrician will find of interest.

WATCH THIS SPACE FOR OUR NUMEROUS SPECIALTIES.

WALWORTH MFG. CO. TOOLS and SUPPLIES for STEAM WATER and GAS USERS BOSTON MASS

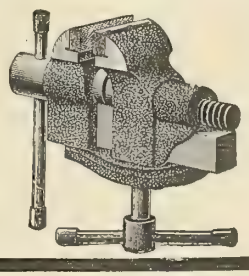
Walworth Extra Heavy Bench Pipe Vise

Is made especially for use in

MARINE REPAIR SHOPS AFLOAT AND ASHORE,

Grips pipe 1/8 to 6 inches inclusive, and by reason of its solid and substantial "make up," also furnishes a first-class tool for general machine work.

Will not Crush or Jam Pipe Like Ordinary Vises



JOBBERS SELL THEM—IF YOURS DON'T, WRITE.
New York, Park Row Building. **WALWORTH MFG. CO.,** Boston, 128 Federal Street.
Write for our BLUE CATALOGUE "D." showing complete line of engineers' pipe fitting tools.

BUSINESS NOTES.

Change of name. The Pittsburg Shear Knife and Machine Company, Pittsburg, Pa., has changed its name to Heppenstall Forge and Knife Company.

Graphite pipe joint compound is sold in collapsible tubes by the Joseph Dixon Crucible Company, Jersey City, N. J. The company states that this tube is especially useful for small work away from the shop and for those who have only occasional need of making threaded connections. Each tube contains about four ounces of the compound and is provided with a small opening closed by a screw cap, thus thoroughly protecting the contents from drying. The paste is squeezed directly upon the threads, making unnecessary the use of a swab, and preventing the soiling of hands or clothes. The method is economical as it saves the waste of the ordinary daubing of the threads, and enables a small amount to be kept constantly on hand for immediate use, saving annoying delays.

Packing tools free. The Mound Tool and Scraper Company, 712 Howard street, St. Louis, Mo., will send for this month only, a souvenir packing tool free to any engineer who mentions that he has seen the offer in Marine Engineering. The company sells a set of six scraping tools in an oak case, in two styles, which it is said are used by leading engineers and by the navy. Of Mound cold chisels the company states that they are made of a high grade crucible steel, thus insuring good results in forging and tempering. These chisels are made up in sets of five: a flat chisel, a narrow cape chisel, a bent grooving chisel for cutting oil ways in engine brasses and bearings, and a diamond point and calking tool suitable for calking seams and boiler rivets. The packing tools the company makes are claimed to fit into any valve rod pump or engine stuffing box, and are warranted not to break in removing packing.

Speedy motor boat. The Lozier Motor Company, of New York City, states that the speed question is going to play an important part in motor boating this year, but believes the demand will be for boats of moderate speed rather than for the extreme type of high-speed automobile racers. This company is building a large number of boats at its New York City works at the mouth of Westchester Creek, and at present has 28, 31, 33 and 40 footers under construction. These boats are termed semi-racers and will have a speed which will enable them to easily run away from the ordinary type of motor boat. For advertising purposes the company is building an automobile boat 25 feet in length to attain very high speed. The hull will weigh less than 500 pounds and will be equipped with a 24x30 Lozier automobile engine turning an 18-inch wheel 1000 R. P. M. The total weight of the hull and engine will be less than 900 pounds. It also has an automobile racing boat 37 feet in length in course of construction at its New York City shops. At the present time the Lozier Motor Company is building at its works at Plattsburg, N. Y., one hundred and fifty launches 21 and 25 feet in length, one hundred of which have been completed and are ready for delivery. At the New York City works in addition to the semi-racers and automobile boats, the following are building: one 50-foot oyster boat, one 32-foot twin screw, shallow draft work boat for Texas, one 21-foot yacht's tender, one 31-foot cruising launch, one 25-foot boat with five windows forward, and several small tenders.

GENERAL MACHINE WORK

Model and Experimental Work
Plans and Specifications Prepared
Prompt Repair Work

ACORN ENGINEERING & MANUFACTURING CO.
27 THAMES STREET, - - NEW YORK, N. Y.

A NEW BOOK

(To be ready about May 15)

USES OF ELECTRICITY ON SHIPBOARD.

By J. W. Kellogg,
Manager Marine Sales Dept., General Electric Company.

The first chapter deals with the early installation of electric equipment both in this country and in England, and outlines briefly the systems installed.

Chapter II. deals with the considerations for modern plant, first, in the selection of an engine of suitable design and size, and next in the selection of a suitable number and size of units, locating them properly, the necessity of perfect lubrication of both engine and generator, and the proper care of the plant.

The third chapter gives a thorough treatment of wiring and insulation, considers the advisability of installing steam turbine, advises as to distribution of current, and proper size of the mains. In further sections the single and double-wire circuits as installed in English and American ships, and the desirability of the third-wire circuit are considered. The last paragraph takes up the requisite sizes and location of the distributing wires.

Chapter IV. is devoted to electric fixtures, fittings, joints, ducts, insulation, and other minor details which, however, are of the utmost importance for the successful operation of a plant. Many illustrations are given of these details as on the market.

Chapter V. Electricity is being used more and more every day for running auxiliaries and chapter five is devoted to a sketch of what is the most recent practice in this line. The use of the electric storage battery on board ship is also considered.

In Chapter VI. is taken up a specific case of wiring for a small steamer. The lay-out of the mains is considered and the reason given for final arrangement. Full details of sizes, number of lights on each circuit, and location of them are stated. For this chapter two large drawings illustrate the wiring plan at the dynamo, and the location of the distributing panels on board the ship.

The book is neatly bound in cloth, and is fully illustrated.

Price $1.00

Orders received now by

MARINE ENGINEERING, 309 Broadway, New York

THE STORY OF PHOEBE SNOW.

If you have ever taken a railroad trip you will enjoy the "Story of Phoebe Snow," which describes in a series of dainty pictures the experiences of a pretty girl who went to Buffalo. The illustrations are in seven colors, each reproducing a design of the girl in white which the Lackawanna Railroad has made so familiar in the last few months. The booklet has a particularly pleasing cover and will afford considerable amusement beside giving information which every traveler ought to know. It will be sent in response to request, accompanied by two cents in stamps, to T. W. Lee, General Passenger Agent, New York City.

"ZINC WHITE is more oxothermic, and hence very staple and more resistant to atmospheric influences, so that painting done with it is more lasting than painting done with white lead."

J. GIRAUD,

In *Oil and Colourman's Journal.*

All high-grade ready-mixed and combination paints are based on

ZINC WHITE

Pamphlets valuable to paint consumers mailed free on request:

"The Paint Question,"
"Paints in Architecture,"
"Specifications for Architects," and
"French Government Decrees."

THE NEW JERSEY ZINC CO.
71 BROADWAY
NEW YORK

We do not grind zinc in oil. A list of zinc paint manufacturers is furnished on request.

The Standard Gauge Manufacturing Company, Syracuse, N. Y., has opened a Western branch at 58 West Washington Street, Chicago, Ill., The Company states that it will carry in stock at Chicago, a full line of "Standard" self-contained pressure and vacuum gauges, and similar engineering specialties. The office will be in charge of the company's treasurer, Mr. W. G. Holbrook.

Fire Hose for New York City. The Republic Rubber Company, Youngstown, Ohio, announces the successful test of its white shield brand of fire hose by the City of New York. It states that the required specifications were the most rigid and exacting ever issued by any city. The fact that White Shield brand stood the test in detail as to cover, duck, friction and tube, establishes this brand, it is claimed, as among the best constructed and highest quality of fire hose manufactured.

E. C. Johnson and Company, Nyack, N. Y., have taken over the business of the Pinckney Company of the same place. The head of the new firm, Mr. E. C. Johnston, recently came over to this country to establish a launch-building yard, to construct seamless steel boats on the improved Wakefield plan, and to build wooden vessels on the new patented system of labor-saving appliances. Mr. Johnston served apprenticeship on the Clyde, and has been in the business for over twenty-five years and has been employed by several of the largest Scotch and English shipbuilders as machinist, draftsman, foreman, and manager.

Managers in Convention. A convention of branch managers, department managers and salesmen of the H. W. Johns-Manville Co., was held in Hartford, Conn., and New York City from February 15th to February 20th. About thirty-five representatives from all parts of the country were present, the company having branches in New York, Milwaukee, Chicago, St. Louis, Boston, Philadelphia, Cleveland, Pittsburg, New Orleans and London. The delegates first met in Hartford where they were the guests of the Johns-Pratt Co., manufacturer of electrical goods for which the H. W. Johns-Manville Co. is sole agent. The object of the convention was to bring all branches into closer touch with each other and to give opportunity for a general discussion of all the lines manufactured by the company.

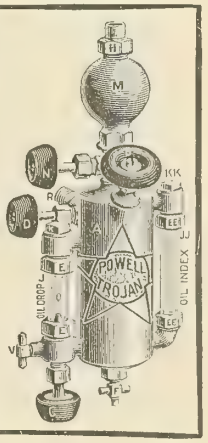
The Sportsmen's Show.—The tenth annual Sportsmen's Show, which was held in Madison Square Garden, New York, N. Y., February 19 to March 5, was by all odds the most satisfactory show that has yet been held. There were many exhibits by launch and gas engine concerns, and they very generally report a most excellent trade in the number of engines and launches held. Among the exhibitors were the following: Victor Metals Company, New York, N. Y., a complete line of boat and yacht fittings made of Victor metals; August Mietz, New York, N. Y., launch engine operated by kerosene; Buffalo Gasolene Motor Company, Buffalo, N. Y., several sizes of launch engines; Richardson Engineering Company, Hartford, Conn., searchlamps and other electric fittings for launches; the Fairbanks Company, New York, N. Y., launch engines; the Lackawanna Motor Company, Buffalo, N. Y., several sizes of launch engines; the Charles A. Strelinger Company, Detroit, Mich., several launch engines; the Standard Motor Construction Company, Jersey City, N. J., engines and hulls; Eagle Bicycle Manufacturing Company, Torrington, Conn., several engines, also hulls; Electric Launch Company, Bayonne, N. J., several electric launches of different sizes; Lozier Motor Company, Plattsburg, N. Y., several engines and hulls; the C. H. Blomstrom Motor Company, Detroit, Mich., standard outfits of hull and engine complete; the Pierce Engine Company, Racine, Wis., two or three sizes of hulls with engines complete.

THE POWELL "TROJAN" SIGHT UP-FEED LUBRICATOR

NOTE THE LATEST IMPROVEMENTS:

The condenser M is a separate piece. It screws on to the water valve N. In case the condenser breaks, and while waiting for repairs, the lubricator can be continued in service by inserting a short nipple. Unscrew coupling H from condenser pipe, insert a short nipple and socket, replace coupling H and connect to water valve N. The threads in coupling and on neck of water valve are same number and gauge. All engineers will appreciate this improvement.

Of course "IT WORKS," the name is especially applicable.



THE WM. POWELL CO., Cincinnati, Ohio, U. S. A.

Everything in the steam line for the boiler and engine room.

New York Agent: H. H. BEALS, 51 Cliff St. Philadelphia Agent: C. J. RAINEAR & CO., 518 Arch St.

The British Johns-Manville Company, Limited, has been incorporated in England with offices and warerooms at 81 Fenchurch street, London, E. C., and will handle a complete line of overhead line material, vulcareston, moulded mica, and Monarch insulations, especially adapted for insulating railway motors, generators, controllers, arc lamps, switch handles, switch boxes, and various other pieces of apparatus requiring a high-grade insulating material; also a complete line of electric heaters, rail bonds, and Sachs Noark enclosed fuse protective devices. The new company will carry a full stock of supplies at the London office, which will enable it to make prompt deliveries and give good service at all times. Mr. Henry J. Joseph is the managing director of the new company, as well as manager of the London branch of the H. W. Johns-Manville Company, with offices at the same address.

Henry J. Gielow, naval architect and yacht broker, 50 Broadway, New York, N. Y., reports that he has sold the steam yacht *Felicia*, formerly belonging to E. W. Bliss of the New York Yacht Club.

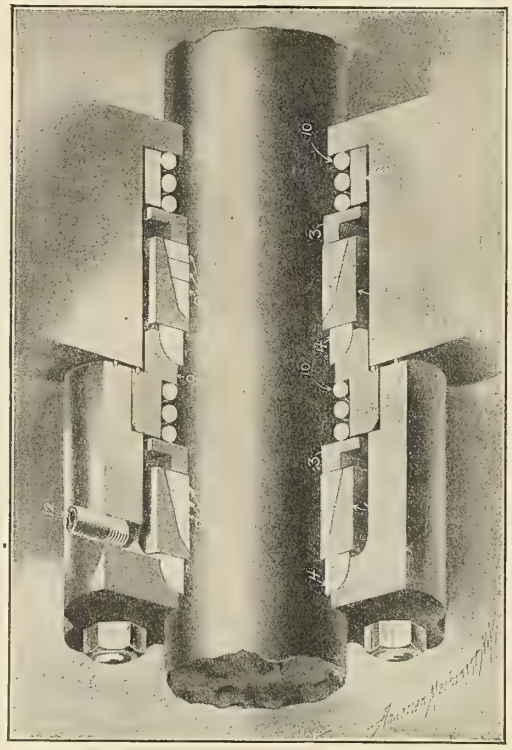
T. S. Marvel & Company, Newburg-on-the-Hudson, N. Y., state that they have a large marine railway and excellent facilities for repairing iron and wood vessels, engines and boilers, besides building them. Many of the ferry and tugboats seen about New York harbor are the product of their yard.

The Goldschmidt Thermit Company, 41 Wall street, New York, N. Y., has incorporated for the purpose of exploiting in America the alumino-thermic process of producing high temperatures by burning aluminum. A complete description of this welding process may be found in the January, 1904, issue of Marine Engineering.

United States Metallic Packing

For Piston Rods and Valve Stems of Marine Engines

Price Low



Class No. 1 Packing.

20 Years Reputation for Satisfactory Reliable Efficient Service

Repairs cheap and easily made

PACKINGS RUN YEARS WITHOUT ATTENTION

CATOLOGUE, PRICES, AND LIST OF USERS ON APPLICATION.

The United States Metallic Packing Company

MAIN OFFICE AND WORKS, 427 No. Thirteenth Street, PHILADELPHIA, PENNA.

CHICAGO, 1509 Great Northern Bldg. SEATTLE, Moran Bros. SAN FRANCISCO, W. H. Pierson

IMPROVED PATENT

Steam Steering Gear, Steam Windlasses and Capstans, Pilot House Stands and Wheels, Chase Patent Coal Elevators,

AND A COMPLETE LINE OF

Yacht Windlasses and Marine Machinery,

MANUFACTURED BY

THE TEXTILE-FINISHING MACHINERY CO.

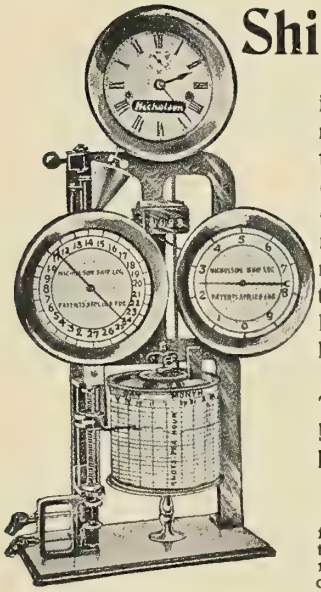
17 Exchange Place, Providence, R. I.

ALSO MANUFACTURERS OF

Bleaching, Dyeing, Drying, and Finishing Machinery, and Improved Hot-Water Remover for Clearing, Drying Cylinders, and Heating Systems of Condensed Water and Air, and Returning Water to Boiler.

NEW YORK OFFICE, 39 CORTLANDT STREET.

The Nicholson Perfected Ship Log



is the only log that accurately shows the speed of the moment of a ship, on a dial, and records this speed on a paper chart for every minute of the trip. It also registers the distance travelled. No line overboard. Placed in chart house or wherever desired.

THE NICHOLSON MARINE DISTANCE FINDER

Advantages Claimed:

The exact distance from any fixed point can readily be determined without any mathematical calculation. Anyone can easily learn to use it.

NICHOLSON SHIP LOG CO.

204 Superior Street, Cleveland, Ohio, U. S. A.

W. H. PIERSON, 421 Market St., San Francisco.
ROBT. SNOWDON, 107 High St., Boro, London, S. E., England.
ARTHUR BEHRENS, Fontanka, 52, St. Petersburg, Russia.

Boilers for Battleships. The Babcock & Wilcox Company, 85 Liberty street, New York City, states that the British admiralty has ordered Babcock & Wilcox boilers for the new battleships *Britannia, Hibernia* and *Africa*. Each vessel will have 18,000 I. H. P. boilers in eighteen units. Babcock & Wilcox boilers have also been ordered for the Italian battleship *Napoli*. This vessel will be equipped with twenty-two boilers.

Uses and Importance of Asbestos.—The New Jersey Asbestos Company, Camden, N. J., states in a circular: "Asbestos is a paradox among minerals. Although mined like anthracite coal, its fibres, when separated by machine from the rock are soft, white and delicate—resembling wool or cotton, though not inflammable. The principal supply of crude asbestos, suitable for commercial use, comes from Canada. As it comes from the mine it costs $200 per ton. The fibres after separation are worth $1500 per ton. The fibres are made into yarn, and woven into cloth in much the same way as is done with cotton. It is then made into packing in various forms, sheeting, tapes, gaskets, theatre curtains, furnacemen's aprons, leggings, firemen's clothes, gloves, etc. The developments in the use of high-pressure engines during the last ten or twelve years, has rendered necessary corresponding improvements in jointing and packing materials. The New Jersey Asbestos Company began the manufacture of asbestos sheeting, spinning a fine brass wire into the center of the threads of both warp and weft, thereby adding strength, and making it capable, it is claimed, of resisting the highest pressure. It is rendered waterproof by a coating of India rubber. The company says this packing met such approval from engineers in general that it secured patents on a number of styles of packing and gaskets, and placed them on the market under the trade mark of the Gladiator asbestos-metallic goods. That these continue to give satisfaction to engineers is indicated by the additional machinery the company adds to its plant from time to time.

The Allis-Chalmers Company, New York Life Bldg., New York City, announces that it has engaged in the manufacture of steam turbines, gas engines, hydraulic and electrical machinery. It is associated with and forms part of the Turbine Advisory Syndicate of England, comprising Yarrow Shipbuilding Company, Tweedie (Vulcan) Shipbuilding Company, Willans & Robinson, and Mr. Fullager, formerly Chief Engineer of the Parsons Steam Turbine Company, of England. It will build steam turbines of the horizontal type which the company claims to be the leading steam turbine on the market, in units from 500 to 10,000 K. W. capacity. The Company's license concedes exclusive rights for the United States, Canada and Mexico, with equal rights in South America, and privilege to carry on business elsewhere in the western hemisphere. It is the sole licensee of the hydraulic machinery of Escher-Wyss & Co., Zurich, Switzerland, who have designed upwards of 85,000 H. P. installed at the Niagara Falls plant of the Cataract Construction Company. It has acquired the American patents and is the sole licensee for the western hemisphere of the Nurnberg Gas Engine, built by the Nurnberg Machinery Co., Nurnberg, Germany, and will build gas engines from 260 to 6000 H. P. The Nurnberg Gas Engine operates with natural, producer, coke-oven, blast furnace, and illuminating gas. The Allis-Chalmers Company manufactures electrical machinery, such as generators, motors and other apparatus for stationary, railway power house and electric light purposes. The electrical department will be in charge of Mr. John F. Kelly, formerly of the Stanley Electric Mfg. Company, and Mr. William Stanley, of same company, will act as consulting engineer. The company invites specifications of requirements for any machinery that it manufactures and promises improved designs and the highest class of workmanship.

The American Bureau of Shipping, 66 Beaver street, New York, N. Y., reports the following vessels classed and rated: American screw *Danville,* American screw *Aztec,* American screw *Benefactor,* American screw *Colon,* American screw *Missouri,* Cuban screw *Manzanillo,* Cuban screw *Yumuri,* American schooners *Henry F. Kreger, Helen Thomas, Eaglet, Salisbury, J. R. Teel;* American three-masted schooners *John M. Brown, Fred W. Ayer, S. P. Hitchcock, Jennie Lockwood*; American half-brig *Atalanta,* American barges *Gusher, Spindletop;* British barkentine *Trinidad,* British three-masted schooners *Helen, Bartholdi;* British topsail tern *Rescue,* British bark *Swansea;* American screw *Wyomissing,* American schooner *James B. Drake,* American three-masted schooner *D. J. Sawyer,* British three-masted schooner *Mona,* British three-masted schooner *Caledonia,* American screw *Mongolia,* American screw *Conestoga,* American screw *Umatilla,* American schooner *Winfield S. Schuster,* American three-masted schooner *George D. Edmands,* American barge *Beattie.*

Gio. Ansaldo and Co., Sampierdarena, Genoa, Italy, shipbuilders and iron workers, have combined with Sir W. G. Armstrong and Co., Newcastle, England. It is stated that the shipbuilding establishment of Ansaldo and Co. at Sestri Torrente, the marine engine plant at Sampierdarena, the fitting and repair shops in Genoa harbor, the steel foundry and the Delta's bronze foundry at Cornigliano, have been turned into a joint stock company, and that half of the capital stock of thirty million lire has been furnished by Armstrong and Company, and the other half by Ansaldo and Company. The Armstrong ordinance factory near Naples is not included in this arrangement. The Ansaldo business in all its branches employs about 3,500 men. It is planned to build naval vessels at the Sampierdarena yard, and to equip them with Armstrong guns. The Ansaldo yard has built many war vessels, including those built for Chili and Argentina which were purchased by England and Japan; also two torpedo boats for Turkey, besides being engaged in repairing six Turkish naval vessels.

The Star Improved Indicator.—The Star Brass Mfg. Co., 108-114 East Dedham Street, Boston, Mass., is distributing a circular describing the Star improved steam engine indicator, outside spring type, designed expressly for use under the extreme high pressure carried at the present time. The Bureau of Steam Engineering, U. S. Navy Department, decided that all indicators hereafter to be furnished the United States Government for the Navy Department shall be of the external or outside spring type. It has many advantages owing to size and lightness of its moving parts, and owing to the fact that the weight of the moving parts has not been increased due to the adoption of the outside spring. The construction of this instrument varies in several ways from the Star inside spring type of indicator as follows: The area of the piston has been reduced from one-half of one square inch to one-quarter of one square inch, thus allowing of the use of a much smaller size of wire for springs, to secure greater elasticity and freedom of operation. The spring is elongated or pulled apart instead of being compressed or pushed apart. The operation of pencil movement is directly opposite to that used in the inside spring types, viz., the atmospheric line is at the top of drum instead of at the bottom. The connection to cylinder is at side instead of at the bottom; owing to this construction the company furnishes with indicator an angle cock, for connection to horizontal types of engines. The cylinder can be readily removed for examination or replacement without in any way interfering with the other parts of the indicator. The end of the cylinder has no connection with the outer wall of the indicator. This allows the cylinder to be surrounded by live steam, practically forming a steam jacket. By unscrewing cap from lower end of cylinder, the piston can be removed with socket wrench, for cleaning or oiling, without in any way disturbing other parts of the indicator.

"Throw Away Your Glue Pot"

WHY have the smell of boiling glue around you all day, and the waste and expense of boiling dry glue, when you can for less money use

ARMY AND NAVY LIQUID GLUE?

NOT A FISH GLUE but a pure hide and sinew glue in liquid form.

THE GLUE OF THE 20TH CENTURY

will do twenty-five per cent. more work than a fish glue. No smell. No dirt. Always ready for use.

Let us send you Samples and Prices

Wachter Mfg. Co.

BALTIMORE, MD.

Engineering Data Cards

MANY readers of Marine Engineering, who keep careful record of all data regarding ships, engines, etc., do not want to mutilate their copies of the magazine by cutting out the data cards which are published each month, and yet desire to keep the data in card form.

For the accommodation of such readers, we are now republishing all such data on cards.

Many cards are now ready for distribution. It is not known how many cards will be issued during the year, so instead of making a yearly rate, the cards are sold as subscribers wish them.

The price is as follows:

To Subscribers, Five Cents per Card
To Non-Subscribers, Ten Cents per Card

All orders placed now can begin with the series and have all the cards issued up to date.

For sample cards and further information, address

MARINE ENGINEERING
309 Broadway New York City

Machinery for Mexico. The Marine Iron Works, Chicago, Ill., states that it has shipped a carload of horizontal tandem compound condensing paddle-wheel machinery to Mexico for a 135-ft. river boat. The company says that it has received many orders from Eastern naval architects for fore-and-aft compound or triple expansion machinery.

The annual meeting of the Boston and Lockport Block Company, Boston, Mass., was held on Feb. 24th, and in addition to regular routine business, the matter of a new plant was considered, and orders given to have plans submitted to the directors at any early date. The Company is preparing a display for the St. Louis Exposition.

"No Great Loss Without Some Small Gain."—Even the fire which recently swept a large part of Baltimore will benefit some. The salvage companies who salvage goods and sell them for the benefit of the fire insurance companies, will profit by this loss. The goods damaged must be dried before they become saleable, much depending upon the success of this drying. The Underwriters' Salvage Company of New York City recently placed an order with the B. F. Sturtevant Company of Boston, Mass., for the complete equipment of a kiln for drying such goods by the Sturtevant fan system. The kiln is divided into small rooms of various widths, served by overhead tracks from which are suspended frames for supporting two tiers of baskets for the reception of the watersoaked material. These rooms are of fireproof construction. Hot air is diffused through the rooms, and the amount of air and its temperature is easily controlled. The drying is economical and independent of the weather. The kiln is not only equipped with the Sturtevant apparatus for drying, consisting of a Sturtevant steam fan connected to a Sturtevant fireproof heater and galvanized iron distributing pipes, but the entire material and workmanship for making the rooms fireproof was furnished by the B. F. Sturtevant Company.

SPECIAL NOTICES.

Announcements under this heading will be inserted at the uniform rate of thirty-three-and-a-third cents a line. Lines average ten words each.

Instructor in naval architecture and marine engineering in eastern college desires change of position. College graduate, with shipyard and drafting-room experience. Best of references. Address, Naval Architecture, care Marine Engineering.

Marine Engineering EMPLOYMENT BUREAU.

Full information regarding the purposes of this bureau, together with instructions regarding registration, etc., furnished upon application to Marine Engineering Employment Bureau, 309 Broadway, New York city.

All correspondence, concerning either vacancies, or situations wanted, is strictly confidential.

VACANCIES.

The Employment Bureau has in hand inquiries for men for positions as follows:

Anglesmiths.
Foremen of Boiler Shop.
Master for a Racing Sloop.
Superintendent of Launch Works.

SITUATIONS WANTED.

We have applications registered for positions as follows, and the references of each applicant have been carefully investigated:

Boiler Makers.
Carpenters.
Chief Draftsmen.
Draftsmen, general hull and engine.
Engineer for gasoline launch.
Foremen of yard, machine shop, and joiner shop.
Licensed engineers, chiefs, and assistants.
Loftsmen.
Machinists.
Masters.
Oiler.
Purchasing agent.
Salesman.
Superintendents.

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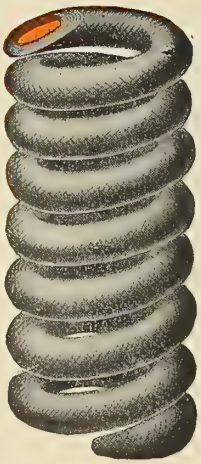

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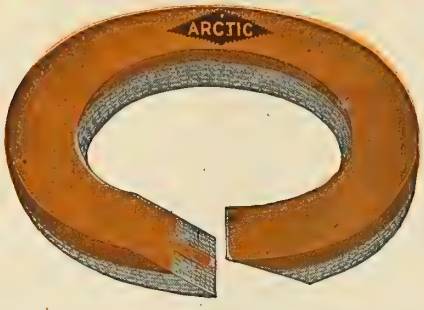

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TRADE PUBLICATIONS.

Yacht and launch owners, and others who are interested in the subject of a compact lighting device, either for boats or small isolated plants, will find much to interest them in an 8-page folder, issued by the Richardson Engineering Company, 36 Pearl street, Hartford, Conn.

The Niles-Bement-Pond Company, 136 Liberty street, New York city, has issued a 750-page catalogue describing machine tools. This book is handsomely bound in red cloth. It contains over seven hundred illustrations, and is one of the handsomest and most complete machine-tool catalogues issued. The volume opens with six full-page illustrations, showing the various works of the Niles-Bement-Pond Company, and following these are thirteen pages illustrating medals and diplomas which have been awarded the various constituent companies of this concern These medals date back as far as 1871, but the great majority are those awarded by more recent expositions. After the medals, the main part of the catalogue begins. First are the machines for railroad shop use. These include a complete line of driving-wheel lathes. Fourteen full-page illustrations are given, showing all sizes from the 51-inch to the 100-inch swing, and one or two special machines, adapted particularly to the use of modern high-power tool steels. The other railroad tools include three styles of cart-wheel lathes, a large variety of axle lathes, cutting off and centering machines, quartering machines, cart-wheel borers and hydrostatic wheel pressers. The next division of the catalogue is devoted to lathes, including all sizes from the Pratt & Whitney bench lathe to the massive Bement 125-inch crank shaft lathe. Besides the standard lathes, a number of special lathes, including pulley lathes, turret lathes and automatic screw machines, are shown. Fifty pages are devoted to planing machines, and a large variety of heavy planers are shown. Various methods of driving by magnetic clutches and motors mounted on the top of housings are illustrated. The large portable rotary planers are among the most interesting machines described in this section of the catalogue. These machines are self-contained, the motor being mounted on the saddle. The largest has a swing of 120 inches, and is arranged so that it can be lifted by a crane and placed in any position on a floor plate. Slotting machines and milling machines take a large number of pages, several very handsome full-page illustrations being devoted to work done on the Pratt & Whitney thread milling machine. A large number of heavy drills are shown, including vertical drills, radial drills and multiple drills. Among the most interesting pages in the catalogue are those devoted to boring machines. First are the horizontal boring machines, which include all varieties of boring machines in which the work remains stationary, the cutting being done by revolving cutters. A complete line of floor boring machines or horizontal boring, drilling and milling machines is shown. Fifty pages are devoted to boring and turning mills. Following the section on boring and turning mills are a few pages devoted to miscellaneous machine tools, and then comes a complete line of boiler-shop machinery, including plate planers, bending rolls, punching and shearing machines, hydraulic presses, steam and hydraulic riveters. In the latter part of the catalogue the full line of Bement steam hammers is illustrated, together with a number of installations of Niles electric traveling cranes. The last pages are devoted to the small tools made by the Pratt & Whitney Company. In the arrangement of the catalogue, particular care has been taken to put the various machines in their logical order, so that any machine can be found without reference either to the table of contents in the front of the book or the index at the back. Metric as well as English dimensions are given throughout, and code-words are placed under each machine While the catalogue is not intended for general distribution, it will be sent to users of heavy machine tools who mention Marine Engineering.

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River navigation is the subject of an illustrated pamphlet of 32 pages, issued by the Marine Iron Works, Station A, Chicago, Ill. Readers of MARINE ENGINEERING who are interested in small and medium-sized craft and powerful steamboats for river service will receive the pamphlet free upon application.

Gas engine troubles are ascribed by the Rochester Gas Engine Company, Rochester, N. Y., principally to the manufacturers who turn out a machine so complicated by "valves and other contrivances without names and too numerous to mention" that it requires the constant services of an expert machinist to keep the engine in running order. A pamphlet sent out by this company states that it has combined in its engines superiority of design, excellence of construction and simplicity and reliability of operation. The Rochester engines are of the two-cycle type. Illustrations and detailed descriptions of the engine and their appurtenances appear in the pamphlet.

Adjustable pocket wrenches for launches and shops, manufactured by the Billings & Spencer Company, Hartford, Conn., and sold by the Charles A. Strelinger Company, Bates street, Detroit, Mich., are the subject of an illustrated booklet, copies of which can be had from either company. Twelve styles of wrenches are described, and each is especially designed for a particular purpose. Users of gas engines of every variety should find these wrenches a great convenience. For some of the wrenches a pipe wrench attachment is provided. The booklet states that in addition to the wrenches described therein, the company manufactures a complete line of drop forged standard engine and machine wrenches, angle-end wrenches, double-end S wrenches, straight, single and double-end wrenches, special machine wrenches, single and double-end tool post wrenches, steel pin wrenches and chuck and spanner wrenches, etc. Special wrenches also are made to order.

"Motor Facts" is the title of an illustrated pamphlet issued by the Bridgeport Motor Company, Bridgeport, Conn. It contains a full description and price lists of the Bridgeport motors, which are built on the two-cycle compression principle, and which, it is stated, differ from the ordinary non-compression type, in that they are compression engines with enclosed crank chambers. It is claimed that Bridgeport motors are symmetrical, neat and compact; that they are simple in design, the parts readily accessible, the ignition positive; that the engine runs quietly, is durable and economical of fuel. The question of lubrication has received special attention, as also has that of ignition. It is claimed that these motors can be regulated to run at various speeds with absolute regularity. The pamphlet describes at length the construction of the Bridgeport motors, and the points wherein it differs from gas engines of other makes. The company also makes launches and deals in yachting specialties of all kinds. This pamphlet, together with a book of testimonials, will be sent free upon application.

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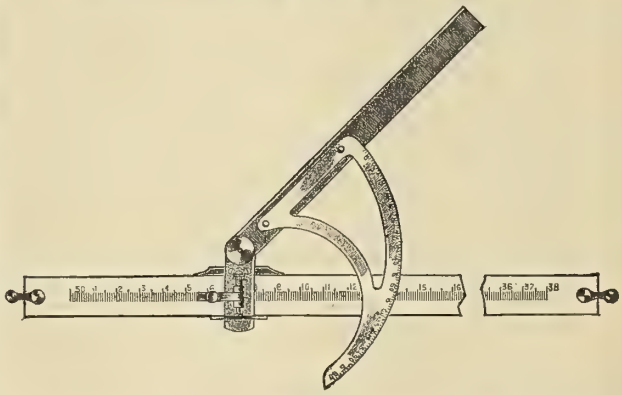

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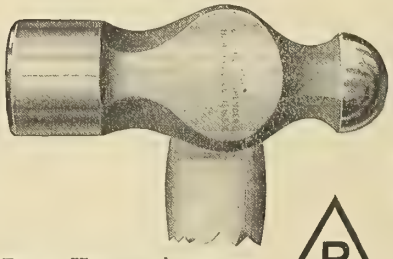

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Electric heating specialties are the subject of a very complete catalogue issued by the Simplex Electric Heating Company, Cambridge, Mass. There are eighty pages, fully illustrated, and listing almost every form of cooking utensil; also a large variety of other appliances, such as glue pots, soldering irons, curling iron heaters, heating pads, instrument sterilizers, radiators, foot warmers, laundry and tailors' irons A catalogue will be sent to readers of MARINE ENGINEERING upon application.

The marine specialties of John Brown & Company, Ltd., Atlas Works, Sheffield, England, are thoroughly illustrated and described in a handsomely illustrated cloth-bound book, copies of which can be had through the New York office, 22 Thames street, from W. C. Wallace, manager of the American branch. The book comprises 62 pages, and gives especial attention to the company's patent marine furnaces, with large drawings showing design, etc., together with a table of working pressures. The Serve patent-ribbed boiler tubes are equally well illustrated and described. Other specialties are the Van Ollefen's patent gear for controlling the doors of water-tight bulkheads, the Ellis & Eaves system of induced draft, which is described with great completeness. Several pages are devoted to illustrations of different types of marine forgings manufactured by this company, either built up or solid forged.

Users of files among our readers may have sent to them free, upon application, a booklet entitled "File Filosophy," issued by the Nicholson File Company, Providence, R. I.

The Economical Burning of Coal Without Smoke, with especial reference to the use of washed coal, by A. Bement, is published for private circulation by the Peabody Coal Company, Chicago, Ill. This is a booklet of forty-eight pages, divided into five chapters, dealing respectively with heat efficiency, incomplete combustion, smoke and its prevention, washed coal and its preparation, and manipulation of fires and furnaces.

Northern marine generators, spherical generators, generators for lighting service, for pumping service and for attachment to grinding machines, are illustrated and described in a series of folders distributed by the Northern Electrical Manufacturing Company, Madison, Wis. Engineers and manufacturers contemplating the use of generating sets should not fail to write for copies of these folders, as well as for Bulletin No. 35, describing multipolar motors. The illustrations and descriptions of Northern motors in machine tool work are especially good.

Sheet metal boats, stamped and embossed, are described and illustrated with many half-tone engravings in a pamphlet issued by W. H. Mullins, Salem, Ohio. The pamphlet states that these boats are built for business or for pleasure—for hunting, fishing, canoeing; that they are made of steel, do not rust, wear out or leak, and do not sink. It is said that they have few joints, are built in plates like warships, and that instead of being clinker-built they are carvel-built; that it is impossible for them to break or buckle on account of their construction, and that they weigh no more than clinker-built wooden boats. All boats are made with air chambers, which it is claimed will float them, even when overturned. Price lists and testimonials are included. A copy of the pamphlet will be sent free to readers of MARINE ENGINEERING upon application.

Marine gas engines, of the single-cylinder, two-cycle type, are described in an illustrated pamphlet sent out by the Eagle Bicycle Manufacturing Company, Torrington, Conn. It is claimed for the Eagle engines that their speed can be instantly regulated, and that the engine will run steadily at all speeds. The speed is controlled by new and simple devices, which, it is stated, gives an instantaneous and wide range in time of spark ignition, with relation to the position of the piston. The company states that it uses a throttle valve by which the amount of gas admitted to the explosion chamber can be accurately regulated. By means of clever devices the engines may be started with ease, obviating any sudden or accidental reversing of the flywheel, with possible injury to the operator. The flywheel is easily removable from the shaft without the use of special tools. Readers of this magazine will receive the pamphlet free upon request.

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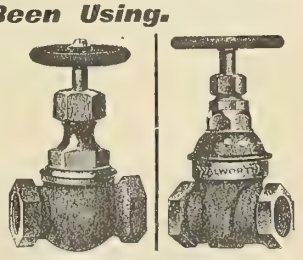

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Write for our BLUE CATALOGUE "D." showing complete line of engineers' pipe fitting tools.

Compressed air installations is the subject of a booklet issued by the American Air Compressor Works, 26 Cortlandt street, New York city. The pamphlet illustrates what are said to be new types of American self-contained poppet air valves, intercoolers, unloading governors and American air compressors. The booklet and a complete catalogue will be forwarded upon application.

Skiffs and canoes, are the subject of a catalogue issued by Wilbur & Wheelock, Clayton, N. Y., who announce that they use the best material obtainable for the construction of their boats; that they do their own work, and test every boat before shipping. Illustrations are given showing skiffs and canoes of various types and sizes. The firm also makes oars, paddles and other boating appurtenances.

A motor boat trip from New York to the St. Louis Fair is discussed in No. 6 of *The Propellor,* issued by the Lozier Motor Company, 1 Broadway, New York city. A variety of routes are given, with illustrations of the scenery. The company asks that parties contemplating this trip send a synopsis of the proposed route, together with information as to the speed of the boat, etc. The pamphlet describes in addition the latest types of Lozier motor boats.

Keystone motors, single and double cylinder, are described in a folder issued by the Delaware River Motor Company, Harrison Building, Philadelphia, Pa. It is stated that the 1904 model has many improvements. Both inlet and exhaust ports are opened and closed by the piston. Shaft bearings are provided with stuffing nuts, to prevent loss of compression in the crank case, even when the bearings are considerably worn. Cylinders and cylinder heads are water-jacketed Speed is controlled by throttle or spark. Either the jump spark or the make-and-break systems are used.

The machinery catalogue issued by the Scully Steel and Iron Company, Chicago, Ill., is a handsomely-bound volume of 150 pages, with 147 illustrations. Machine tools of all sorts are fully described and illustrated. Among these of interest to ship and engine builders are air compressors, forges, pneumatic hammers, steam hammers, lifting jacks, plate-bending rolls, pneumatic tools, punches and shears and riveters. The illustrations are particularly good, and the descriptions accompanying them are concise but complete. The company states that its tools and machinery are carefully designed with a view of adaptation to the work for which they are intended, and that they are the result of long experience and investigation.

The Springfield Boiler and Manufacturing Company, Springfield, Ill., is mailing an illustrated catalogue describing corrugated furnaces, boilers, stand pipes, steel pipe tanks, hydraulic dredges, water jackets and other iron and steel work. The catalogue states that since the last one was issued the plant has been completely remodeled and rebuilt. This company does not carry boilers in stock, but makes them to order. Many pages of tables and specifications appear, and much useful information is given, such as tables showing the number of gallons in tanks of various sizes, the pressure of water per square inch for every foot in height up to 300 feet, and the Hartford Steam Boiler and Inspection Company's rules for the management and care of boilers.

The "Ideal" Self-feed Tube Cutter is the subject of an illustrated folder issued by the Scully Steel and Iron Company, 136 Fulton street, Chicago, Ill. It is stated that by means of this device tubes can be cut off either inside or outside of the boiler head. The tool is turned by means of a ratchet The feed handle is swiveled, in order to get close to the boiler shell. All tubes, it is claimed, are cut off the same distance from the head, and are cut with a bevel ready for beading. An extension is made for attachment to the cutter, and when this is used it is stated that a man can stand upright outside of a boiler and cut off the tubes either inside or without the head, enabling him to do four times as much work as when crouched up inside of a smoke-box, chipping off the tubes.

A NEW BOOK

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USES OF ELECTRICITY ON SHIPBOARD.

By J. W. Kellogg,
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The first chapter deals with the early installation of electric equipment both in this country and in England, and outlines briefly the systems installed.

Chapter II. deals with the considerations for modern plant, first, in the selection of an engine of suitable design and size, and next in the selection of a suitable number and size of units, locating them properly, the necessity of perfect lubrication of both engine and generator, and the proper care of the plant.

The third chapter gives a thorough treatment of wiring and insulation, considers the advisability of installing steam turbine, advises as to distribution of current, and proper size of the mains. In further sections the single and double-wire circuits as installed in English and American ships, and the desirability of the third-wire circuit are considered The last paragraph takes up the requisite sizes and location of the distributing wires.

Chapter IV. is devoted to electric fixtures, fittings, joints, ducts, insulation, and other minor details which, however, are of the utmost importance for the successful operation of a plant. Many illustrations are given of these details as on the market.

Chapter V. Electricity is being used more and more every day for running auxiliaries and chapter five is devoted to a sketch of what is the most recent practice in this line. The use of the electric storage battery on board ship is also considered.

In Chapter VI. is taken up a specific case of wiring for a small steamer. The lay-out of the mains is considered and the reason given for final arrangement. Full details of sizes, number of lights on each circuit, and location of them are stated. For this chapter two large drawings illustrate the wiring plan at the dynamo, and the location of the distributing panels on board the ship.

An Appendix contains chapters VII and VIII.

Chapter VII. comprises detail drawings and description of a lighting plant for launches, consisting of a generator belted to the fly-wheel of the gasoline propelling engine used in combination with a storage battery.

Chapter VIII. is devoted to isolated plants with generator direct-conneted or belted to a gasoline engine, for lighting sailing yachts, large launches, etc.

The book is neatly bound in cloth, and is fully illustrated.

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THE STORY OF PHOEBE SNOW.

If you have ever taken a railroad trip you will enjoy the "Story of Phoebe Snow," which describes in a series of dainty pictures the experiences of a pretty girl who went to Buffalo. The illustrations are in seven colors, each reproducing a design of the girl in white which the Lackawanna Railroad has made so familiar in the last few months. The booklet has a particularly pleasing cover and will afford considerable amusement beside giving information which every traveler ought to know. It will be sent in response to request, accompanied by two cents in stamps, to T. W. Lee, General Passenger Agent, New York City.

The Edson Manufacturing Company, 255 Atlantic avenue, Boston, Mass., is distributing a mailing card, calling attention to yacht steering gears and appliances, hydraulic pile sinking outfits, prospecting and mining outfits and other machinery manufactured by the company.

Two-cycle vs. four-cycle motors is the subject of a discussion in Catalogue E, issued by C. L. Barker, Norwalk, Conn., a copy of which will be forwarded upon request. A description is given of the construction and design of the Barker marine motors with their appurtenances.

Fire brick, vitrified paving brick and fire proofing materials are the subject of a catalogue issued by the National Pyrogranit Company, 17 Battery Place, New York city. Numerous tables are given showing the number of wedge brick, key brick, arch brick and bricks of many sizes, for various circles.

Two-cycle marine engines are illustrated and described in a brochure issued by Termat & Monahan, Oshkosh, Wis. A photograph is given of the speed launch *Merlie,* winner of the Oshkosh Yacht Club cup, and equipped with a Termat & Monahan 12-horse-power, four-cycle engine. A circular describing four-cycle engines is also issued by this firm.

An illustrated placard, issued by John F. Allen, 370-372 Gerard evenue, New York, N. Y., will be found of interest by users of riveting machines. It presents some statements regarding the results accomplished by the "Allen" Portable Pneumatic Riveter that are worth noting.

The noted electrical engineer, André E. Blondel, is the subject of the latest monthly card calendar issued by the Bullock Electric Manufacturing Company, Cincinnati, Ohio. A portrait of Mr. Blondel appears on the front of the card, and on the reverse is a short sketch of his life and achievements. The Bullock card calendars are all lithographed in several colors.

BUSINESS NOTES.

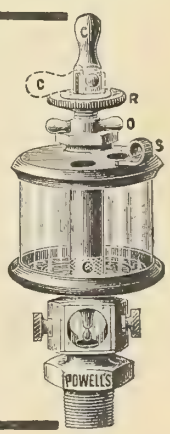
THE AMERICAN BUREAU OF SHIPPING, 66 Beaver street, New York city, reports the following vessels classed and rated: American screw *Shawmut,* American schooners *Frontenac, Magnus Manson, Claremont, Anthony D. Nichols* and American three-masted schooner *Carrie A. Norton.*

NICHOLSON LOGS.—Several ships are being fitted at present with the Perfected Ship Log, made by the Nicholson Ship Log Company, 204 Superior street, Cleveland, Ohio. Among these vessels are the cable steamer *Minia,* for the Anglo-American Telegraph Company; the steam yachts *Warrior,* belonging to Mr. Frederick W. Vanderbilt; the *Rambler,* belonging to A. Cass Ledyard; the *Tarantula,* W. K. Vanderbilt, Jr., and the Great Lakes steamers *Northwest* and *Northland* and *City of Benton Harbor.* There are many inquiries for this log, and several other orders are expected to be closed.

POWELL'S PATENT "SIGNAL" OILER

SIGNAL LEVER UP—FEEDING
SIGNAL LEVER DOWN—FEEDING STOPPED

Easy to fill. Simple to regulate. The only Oiler on the market with sight chamber that can be examined and cleaned without interfering with the operation of the cups.



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H. H. BEALS, 51 Cliff Street

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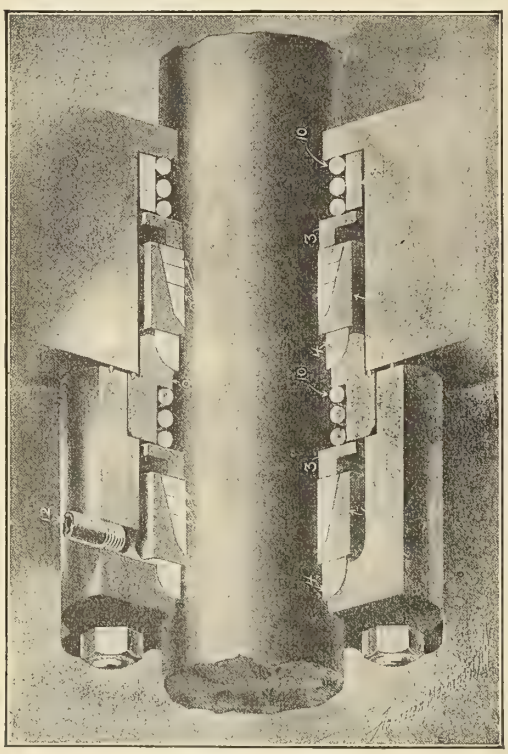
Oil for Gas Engine Lubrication.—The A. W. Harris Oil Company, Providence, R. I., issues a circular, in which it is stated that for fifteen years it has been experimenting with and manufacturing lubricants for gas engines, until now it has perfected lubricants which fulfill all requirements of the various types of motors. Special brands are made for the lubrication of motors using the water-cooled, air-cooled or splash systems, as well as for engines using either saturated or superheated steam. Regarding the oil for watercooled motors, the company states that it affords the necessary lubrication, yet leaves no deposit, and does not carbonize in the cylinder, and, moreover, does not congeal in low temperatures. The oil for air-cooled machines is heavier, and is a high fire test oil. This oil is also recommended for the splash system of lubrication. Regarding the superheated steam cylinder oil, it is claimed that it will stand a temperature of over 700 degrees.

Will Exhibit at St. Louis.—The Northern Electrical Manufacturing Company, Madison, Wis., states that it will have an extensive exhibition at the World's Fair, which it is planned to make a Mecca for people interested in electrical machinery, as well as for those who are interested in the subject of motor-driven machines and machine tools. The location of the exhibit is Section 14, Palace of Electricity.

Rochester Gas Engines.—The Rochester Gas Engine Company takes pleasure in announcing that it has reorganized, with J. S. Graham, president; J. J. Leary, vice-president, and W. J. Graham, secretary and treasurer. Messrs. J. S. and W. J. Graham have been manufacturers of machinery in Rochester, N. Y., for many years. Increased facilities for the building of marine, stationary and automobile engines in large quantities have been completed.

United States Metallic Packing

owes its great success to its flexibility, and to the fact that all packings are designed to suit the especial work for which they are required.



Class No. 1 Packing.

As wear takes place, our packings are automatically adjusted by the steam pressure itself.

Their flexibility is such that no matter how badly an engine is out of line, or how much play there is between cross-heads and guides, or between piston and cylinder, the packings float with the rods, and hot rods are avoided.

All rings are in halves so that it is not necessary to disconnect the engine when making repairs or renewals.

OUR PACKINGS RUN FOR YEARS WITHOUT ATTENTION

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Steam Steering Gear, Steam Windlasses and Capstans, Pilot House Stands and Wheels, Chase Patent Coal Elevators,

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Bleaching, Dyeing, Drying, and Finishing Machinery, and Improved Hot-Water Remover for Clearing, Drying Cylinders, and Heating Systems of Condensed Water and Air, and Returning Water to Boiler.

NEW YORK OFFICE, 39 CORTLANDT STREET.

Marine Paints.—James H. Tarr, Gloucester, Mass., manufacturer of marine paints, states that his products are largely used not only by vessel owners, but also in drydocks and repair yards, and that he makes several different compositions, each of which is especially adapted to some particular class of vessel.

The C. O. Bartlett and Snow Company, Cleveland, Ohio, reports orders for conveying machinery from the following companies: The Iroquois Portland Cement Company, Caledonia, N. Y.; the Elk Rapids Portland Cement Company, Elk Rapids, Mich.; the Grasselli Chemical Company, Cleveland, Ohio; the Struthers Furnace Company, Struthers, Ohio; the Sandusky Portland Cement Company, Sandusky, Ohio; the Sherwin-Williams Company, Cleveland, Ohio; the Cleveland Gas, Light and Coke Company, Cleveland, Ohio; the Farmers' Chemical Company, Cleveland, Ohio; and the S. Lorain Coal Company, Lorain, Ohio; also from the Rossland Power Company, Rossland, B. C., for mining machinery.

John McCormack, Contracting Engineer, 52 Broadway, New York city, announces that he is prepared to furnish drawings and specifications and to contract for equipping marine and land internal furnace boilers, horizontal and vertical tubular boilers, locomotive boilers, all kinds of steel construction work, complete power plants, mechanical stokers, etc.

Doubles Its Capital Stock.—A doubling of its capital stock, which has been $1,000,000, is announced by Crocker-Wheeler Company, manufacturers and electrical engineers, Ampere, N. J. This company was organized in 1892 by Dr. Schuyler Skaats Wheeler and Prof. Francis B. Crocker, on a relatively modest basis. It now has fifteen branch offices, from Boston to San Francisco, and does one of the largest businesses in the world in electric power apparatus. The capitalization was several times increased, until in 1899 it had become $1,000,000. In view of the rapidly expanding business the stockholders have now decided to increase this amount to $2,000,000.

A New Fireproofing Material, known as "Ceilinite," has been placed on the market by the H. W. Johns-Manville Co., 100 William street, New York city. It is designed especially for fireproofing the ceilings in electrical cars, for which purpose it is being used by the Pennsylvania Railroad Company and the Interborough Rapid Transit Company. "Ceilinite" may be used for lining partitions, ceilings, side walls and at every point where a flexible fireproof barrier is required, as well as for various other purposes. It is made from specially prepared asbestos, in pieces ⅛ inch to ⅜ inch thick, 36 inches wide and about 50 feet long. Samples and prices may be obtained from the manufacturer's offices in New York, Milwaukee, Chicago, St. Louis, Boston, Philadelphia, Pittsburg, Cleveland, New Orleans and London.

The Organization of Industrial Departments by several of the eastern trunk lines during the past two years illustrates one of the modern business methods of railroad corporations. Beginning with the Delaware, Lackawanna and Western Railroad Company, New York, N. Y., the first to organize such a department among the trunk line group, this idea of promoting the location of desirable industries has become an important feature of railroad management. With the Lackawanna this industrial promotion is carried on along the most progressive lines. For instance, among other factory properties, C. W. Ten Broeck, the industrial agent of the Lackawanna, is just now interested in securing the re-occupation of a vacant power plant at Scranton, Pa. The property approximates 17,630 square feet of floor space and includes machine and storage shops, office and pattern shops, engine room, boiler room, etc., all of which is served by a Lackawanna side track. The road is naturally anxious to see such properties running at full capacity and in conducting a department whose business it is to accomplish such work, the Lackawanna being alive to the benefit to be derived therefrom.

PAINT A SHIP with white lead or any other white except

ZINC WHITE

And you will have a shabby-looking ship at the beginning of her first voyage. Paint with *Zinc White*, and she will remain "ship-shape" through several voyages.

FREE: Our Practical Pamphlets:
"The Paint Question,"
"Paints in Architecture,"
"Specifications for Architects,"
"French Government Decrees."

THE NEW JERSEY ZINC CO.

71 Broadway, New York

We do not grind zinc in oil. Send for list of zinc paint manufacturers.

The Hall Manufacturing Company has removed from 40 Cortlandt street to 62 Cliff street, New York city, where it has taken larger offices.

Samuel J. Williams, manufacturer of marine specialties and copper paints, has removed from 11 Broadway to the Maritime Exchange Building, 78 Broad street, New York city.

The Maxfield-Francke Company, manufacturers of the Francke four-ported engine has removed from 120 Liberty street to the Electrical Exchange Building, 136 Liberty street, New York city.

George N. Gardiner & Son, manufacturers of the American McInnes anti-corrosive and anti-fouling compositions, who have been more than thirty years at 53 South street, have removed to 15 William street, New York city.

Stilwell-Bierce and Smith-Vaile Company has removed from 141 Broadway and has taken the ground floor, 93 Liberty street, New York city, where it will carry a full line of marine and stationary pumping machinery Mr. George W. Neff remains in charge as General Eastern Manager.

Alfred B. Sands & Son, yacht plumbers and manufacturers of yacht plumbing specialties, who for many years have been located at 134 Beekman street, have removed to 242 Water street, New York city, where they have a larger building and better facilities for handling their increased business.

The Emperor of Germany has ordered from the Edson Manufacturing Company, 255 Atlantic avenue, Boston, Mass., a steering gear for his new yacht now building. The wheel and steering gear of the Emperor's yacht Meteor were built by the Edson Manufacturing Company.

Repairs to an Engine Frame.—The Pennsylvania Railroad Company has written the Goldschmidt Thermit Company, Wall Street Exchange Building, New York city, that an engine, the frame of which was repaired by the thermit welding process, on February 20, has been on the road ever since. The thermit used for this welding had in it a mixture of 2 per cent. pure manganese, free from carbon, and 5 per cent. of iron punchings.

Hollow Staybolts in Japan.—The Falls Hollow Staybolt Company, Cuyahoga Falls, Ohio, reports several large orders from Japan for double refined charcoal iron hollow staybolt bars. The company states that its trade with the railway companies and boiler manufacturers of Japan, and also with the Japanese government, is rapidly increasing. The company reports very gratifying results of an inspection of its staybolts by the United States steamboat inspection service.

Jump-spark Coil and Spark-plug.—This device is made by the American Coil Company, West Somerville, Mass. The coil and plug are made in one piece, ready to put on the engine without the usual wiring, as there is only one wire running from the coil case, and this is an ordinary primary wire running direct to the battery, and on which water has no effect. It is stated that the combination is water proof, and thus does away with the usual troubles where the jump-spark is used in damp places. A full description and catalogue will be sent upon application to readers of Marine Engineering.

War Department Orders 120 Boats.—The Electric Launch Company, Bayonne, N. J., has received an order from the United States War Department for 120 boats, to be used as tenders to the submarine craft now building. The order was obtained by the builders under competitive bidding, and the boats are to be completed before July 1. This company states that it is also building a large number of electric and gasoline launches and yachts. One built for use on Lake George will be charged from the electric light plant in its owner's summer residence, and by a special arrangement the residence can be lighted by the electricity in the launch if the electric plant is not running.

"Throw Away Your Glue Pot"

WHY have the smell of boiling glue around you all day, and the waste and expense of boiling dry glue, when you can for less money use

ARMY AND NAVY LIQUID GLUE?

NOT A FISH GLUE but a pure hide and sinew glue in liquid form.

THE GLUE OF THE 20TH CENTURY

will do twenty-five per cent. more work than a fish glue. No smell. No dirt. Always ready for use.

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ADDRESSES OF CORRESPONDING SECRETARIES.

No. 1, W. D. Blaicher, 10 Exchange St., Buffalo, N. Y.
" 2, Wm. Kelly, 11 Wall St., Cleveland, O.
" 3, A. L. Jones, 289 Champlain St., Detroit, Mich.
" 4, Jas. A. Macauley, 5802 Indiana Ave., Chicago, Ill.
" 5, Otto Boettger, 1035 E. Hopkins Ave., Baltimore, Md.
" 6, Wm. Arste, 322 Pine St., St. Louis, Mo.
" 7, Wm. T. McElwee, Box 1556, Portland, Me.
" 9, Wm. Bridges, 784 1-2 12th St., Milwaukee, Wis.
" 13, John G. Paulding, 1746 Tulip St., Philadelphia, Pa.
" 14, Joseph F. Dumas, 403 Dauphin St., Mobile, Ala.
" 15, R. C. Skinner, 622 Louisa St., New Orleans.
" 17, Jas. D. Robinson, 341 Isabella St., Newport, Ky.
" 18, Wm. Hurst, 715 Walnut St., Cairo, Ill.
" 20, Jos. B. Barry, 206 Keel St., Memphis, Tenn.
" 21, Lawrence Miller, 304 E. Jackson St., Vicksburg, Miss.
" 23, Wm. R. Lewis, 213 E. Front St., Jeffersonville, Ind.
" 24, Jas. B. Flach, 327 N. 4th St., Paducah, Ky.
" 26, T. H. Kirkbride, 910 E. Columbia St., Evansville, Ind.
" 27, L. C. Schwall, 598 S. Madison St., Bay City, Mich.
" 29, James R. Sutherland, Sutherland, W. Va.
" 30, E. R. Humphrey, 239 Water St., Pittsburg, Pa.
" 33, James J. Waters, 283 Hudson St., New York, N. Y.
" 35, William M. Coombs, 36 East St., San Francisco, Cal.
" 36, Jos. Thomas, 57 Sea St., New Haven, Conn.
" 37, John B. Bender, 1215 Evesham Ave., Toledo, Ohio.
" 38, Chas. S. Follett, 73 Starr Boyd Bldg., Seattle, Wash.
" 39, Frank Feeney, 513 E. 8th St., Erie, Pa.
" 40, Chas. Drouet, 1003 Ave. I, Galveston, Tex.
" 41, W. H. Marshall, 343 Holladay St., Portland, Ore.
" 42, Jas. Manning, 802 E. Duval St., Jacksonville, Fla.
" 43, Thomas J. Coyle, 627 Superior St., Port Huron, Mich.
" 44, Chas. J. Sullivan, 489 1st St., Manistee, Mich.
" 45, W. L. Salter, Care O. S. S. Co., Savannah, Ga.
" 46, D. W. Farrell, Clayton, N. Y.
" 47, J. R. Cook, Sault Ste. Marie, Mich.
" 48, Alfred Hegemer, 140 E. Park St., Sandusky, O.
" 51, H. S. Connell, 12 Ransom St., Muskegon, Mich.
" 53, Harry Stone, Box 445, Marine City, Mich.
" 55, Archie Stalker, Box 883, Cheboygan, Mich.
" 57, E. B. Meeker, 71 Abeel St., Kingston, N. Y.
" 58, E. Capers Haselden, Box 31, Georgetown, S. C.
" 59, Geo. F. Keating, 74 Webster St., E. Boston, Mass.
" 62, N. S. Lawrence, 30 Connecticut Ave., New London, Conn.
" 63, M. J. Burke, 152 Sheridan Ave., Albany, N. Y.
" 65, W. C. Palmer, Care Consumers' Coal Co., Charleston, S.C.
" 67, James K. Dole, Saugatuck, Mich.
" 70, Chas. T. Smith, 665 Commercial St., Astoria, Ore.
" 72, Wm. T. Findlay, 130 W. Bridge St., Oswego, N. Y.
" 73, E. M. Donahue, 1308 Cherry St., Green Bay, Wis.
" 75, Wm. D. Hemenway, Alexandria Bay, N. Y.
" 76, Orson Vanderhoef, Grand Haven, Mich.
" 77, John P. Hall, 1215 Huron St., Manitowoc, Wis.
" 78, J. P. Burg, 2722 Minnesota Ave., Duluth, Minn.
" 80, Edward S. Welch, 338 Hamilton St., Albany, N. Y.
" 81, Jas. L. Sweeney, 206 E. Sarragosa St., Pensacola, Fla.
" 82, Fred H. Gowell, 427 Middle St., Bath, Me.
" 85, John A. Packard, 623 Merchant St., Alpena, Mich.
" 86, Sherman A. Smith, 737 Menekaunee Ave., Marinetta, Wis.
" 87, Geo. B. Milne, 809 Fourth St., Detroit, Mich.
" 88, C. O. Chapman, S. B. Canal, Sturgeon Bay, Wis.
" 89, Geo. E. Willard, 4 Isabella St., Ogdensburg, N. Y.
" 91, A. L. McLaren, 130 W. Walnnt St., Ashtabula, O.
" 92, Jos. D. Budd, Box 50, Sta. I, Saginaw, W. S., Mich.
" 93, W. J. Cook, 2220 G. St., N. W., Washington, D. C.
" 94, Geo. R. Jones, Box 222, Washington, N. C.
" 95, P. J. McMahon, Box 199, Key West, Fla.
" 98, Bert Hamlin, 114 Exchange Place, New Orleans, La.
" 100, Jas. P. Lynch, Honolulu, H. I.
" 101, J. K. Cotton, Box 765, Norfolk, Va.
" 102, Fred W. Linsemeyer, 210 Clinton St., South Haven, Mich.
" 103, A. E. Pittman, Box 378, New Bern, N. C.

TRADE PUBLICATIONS.

Induction coils, for battery or generator devices, are the subject of a mailing card sent out by the Induction Coil Company, Milwaukee, Wis. Information will be furnished upon application and enquirers are requested to state whether the coils are wanted for batteries or for generators.

Flexible transmission of power for boat-building machinery, electric hammers, drills, bridge construction, etc., is the subject of Bulletin No. 17, issued by the Coates Clipper Manufacturing Company, Worcester, Mass. The bulletin states, "a flexible shaft is no new thing, but a hardened steel ball-bearing flexible shaft is new indeed. In the new Coates shaft a transmission of 75 horse power has been developed, and the shaft, owing to its ball and socket link construction, is extremely flexible." This flexible shaft is made up of a series of hardened steel joints, shaped like a ball, which, it is said, allow a high rate of speed without heat, and, if broken, a new shell can be inserted and the shaft will be as strong as ever and just as flexible. The Coates shaft is claimed to work equally well in either direction. Drill presses, die sinker's engine, multipliers, breast drills, center grinders, boring machines, and other tools suitable for attachment to the Coates shaft, are also illustrated and described.

The marine gas engines manufactured by Lacy Brothers, Toledo, Ohio, are described in a handsomely illustrated catalogue which the firm is distributing. The Lacy engines are built in many sizes in both the two-cycle and the four-cycle type. Each type, the pamphlet states, has its advantages, dependent upon the service for which it is to be used. All bearings are made of phosphor bronze as are also the connecting rods of the smaller engines. Crank shafts are of forged steel. Great care has been taken in the construction of the vaporizer, throttle valve, and muffler. The engine cylinder is water jacketed, and it is claimed that there is no place on the exhaust pipe where the hand may not be placed with comfort. The Lacy engines use the jump-spark method of ignition. Many of the two- and three-cylinder engines are sent out without reversing gears or reversible propellers. In this case a friction clutch coupling is furnished, enabling the operator to stop, start, and reverse the engine with the propeller disconnected. The starting of the Lacy engine is claimed to be very easy, and great care has been taken to produce proper balancing and absence of vibration. The four-cycle engines are designed for working boats, tugs, and large yachts. This firm also furnishes launches of various types.

Marine gasoline engines of the two-cycle type are described and illustrated in a catalogue issued by the Michigan Motor Company, Grand Rapids, Mich. The catalogue states that owing to improvements in design the engine uses less than one gallon per brake horse power on a ten-hour run, or less than one-tenth of a gallon per hour. The company claims that it has given great care and attention to securing for its engine lightness, compactness, durability, and simplicity of design. The engine is said to be made of the finest gray iron mixed with steel to insure strength. The cylinders and cylinder heads are tested by hydraulic pressure, the pistons are long and ground fitted. Crank-shaft bearings, connecting rod, and piston-pin boxes are made of gun-metal bronze. The other wearing parts are of hardened steel. Crank shaft and connecting rods are made from solid forgings of open-hearth steel. The company states that its engine makes no disagreeable noises, and that there is no danger of fire, ignition taking place inside of the cylinder, and that the cylinder, cylinder head, and exhaust pipe, the only parts subject to heat, are water jacketed. Improvements are claimed in the devices for starting and reversing the engine and in other appurtenances. This company also makes reversible propeller wheels and reversible friction clutches.

Modern pumping machinery is the subject of Catalogue No. 3, issued by the Heisler Pumping Engine Company, Westinghouse Building, Pittsburg, Pa. The Heisler boiler feed pump is said to be very powerful and to operate against high pressure with a minimum cost for fuel.

Gas engines of the two-cylinder type are illustrated and described in a catalogue sent out by the Automatic Machine Company, Bridgeport, Conn. The company states that its engine, the "Automatic," is the product of experience and skill; that its special features are simplicity of design, strength of material, and accessibility of parts, thus avoiding the removal of one part in order to reach another. The company supplies engines and machinery for working boats as well as for yachts. The "Automatic" engines are of the four-cycle type. Hoisters, side rollers, oyster dredges, dredge rings, cargo hoists, reversing gears, friction connections, knuckle joints, and other gas engine and boat appurtenances are also described in this catalogue, a copy of which will be sent upon application.

Hand motors for propelling boats are the subject of a folder distributed by the Prouty Manufacturing Company, 35 Oliver street, Boston, Mass. The company states that the use of its hand motors gives greater speed with less labor than when oars are used, and that, unlike other motors, the expense ends with the first cost. The operator, moreover, faces in the direction the boat is going, and can work the motor as readily in rough as in smooth water. A single operator, it is claimed, can make three or four miles an hour. To make five or more miles an hour there should be two persons operating the motor. While the boats manufactured by this company are designed with special reference to the motor, no especial construction is required, it is claimed, except that a sufficient depth of keel should be added to enable the propeller shaft to be located five inches below the water line when the boat is light.

Users of calculating devices will be interested in the Goodchild mathematical chart made by the Keuffel & Esser Company, manufacturers of drawing materials and surveying instruments, 127 Fulton street, New York city. This chart is a single folded sheet on the two inside pages of which is a scale of logarithms upon 100 lines. The lines are graduated, and below every fifth graduation is printed the number represented in the logarithmic scale by that particular line and distance. In multiplication, therefore, the sum of the initial figures and of the distances will give the initial figure of the line on which, and the distance at which, the product will be found. The operation for division is practically the reverse of that for multiplication. Of the two pages not shown in the cut, the first page contains the very simple directions and some examples, and the fourth page contains, on scales of 10 lines, the logarithmic sines and co-sines and numbers for measuring them.

PRACTICAL SHIP BUILDING.

A Treatise on the Structural Design and Building of Modern Steel Vessels. The Work of Construction, from the making of the Raw Material to the Equipped Vessel, including Subsequent Up-keep and Repairs.

By A. CAMPBELL HOLMS, Member of the Institution of Naval Architects and of the Institution of Engineers and Shipbuilders in Scotland: Surveyor to Lloyd's Register of Shipping. 2 Vols. [Vol. I., Text. Medium 8vo. Vol. II., Diagrams and Illustrations. Oblong 4to] $16.00 NET, Expressage extra.

Longmans, Green & Co.,

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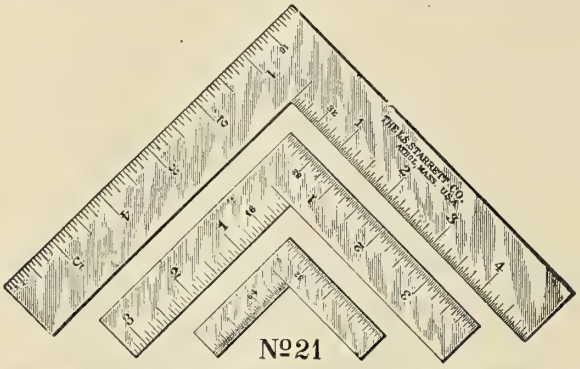
WHEN PURCHASING

TRY SQUARES

GET THE BEST

They cost but little more and they can always be depended upon to be accurate if they are **Starrett make.**



No. 21 squares are of thin, polished steel, and lie flat on the work. Draughtsmen as well as machinists use them. Made in 2, 3, 4 and 6 in. sizes. Several other styles of Try Squares are shown in

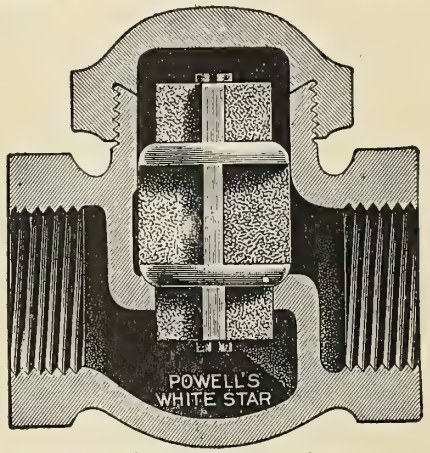
Our CATALOGUE No. 17L, which tells of all the STARRETT TOOLS, Sent FREE

The L. S. Starrett Company

ATHOL, MASS.

"WHITE STAR" CHECK VALVE

Reversible and Re-Grinding



Disks in one piece with double seating heads
Both ends made to gauge.
Economical because reversible and made of best material.
Will withstand a temperature of 2,000 degrees.
Simple and convenient—Re-grinding effected by inserting screw-driver in slot at either end of disk and rotating back and forth.

THE WM. POWELL CO.

Everything in the steam line for the boiler and engine room.

CINCINNATI, OHIO, U. S. A.

New York Agent: H. H. BEALS, 51 Cliff St.

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The tendency of to-day
is to use grease wherever possible, because of its reliability and economy.
Dixon's new Booklet
Oil vs Grease
carefully discusses the question with particular reference to
Dixon's Ticonderoga Graphite Greases
Write for a free copy.
JOSEPH DIXON CRUCIBLE CO.
Jersey City, N. J.
Please Mention This Publication.

Charles Proteus Steinmetz is the subject of the latest monthly card biography issued by the Bullock Electric Manufacturing Company, Cincinnati, Ohio.

Lubricators, oil cups, oil pumps, grease cups, multiple oilers, generator valves, and other engineering specialties are illustrated and described in a 46-page catalogue issued by the American Lubricator Company, Detroit, Mich. There are eight different patterns of sight feed lubricators, brass lubricators of two styles, various kinds of oil cups, and, in fact, a great variety of patterns of all the specialties manufactured. No one interested in this line of goods should fail to send for a copy of the catalogue.

Horizontal milling machines, hydraulic punching machines, rotary planers, thread millers, and other machine tools are described and illustrated in *The Progress Reporter*, published by the Niles-Bement-Pond Company, 136 Liberty street, New York city. Among other illustrations is a photograph of a steel worm, 3 7-8 inches in diameter, cut in sixteen minutes on a Pratt & Whitney thread miller. The object of the publication is stated to be to keep the public and the employees of the company informed as to the new machines and devices which are constantly being brought out. All persons desiring to receive copies regularly will be put on the company's mailing list upon request.

Oil rivet forges, spraying machines, torches, sand blasts, heaters, and lead and Babbitt metal furnaces are the subject of a folder entitled "Macleod's Labor Savers," issued by Walter Macleod & Company, 457 East Front street, Cincinnati, Ohio.

Stationary motors for machine shops are described in a folder issued by the Bridgeport Motor Company, Bridgeport, Conn. Marine motors and launches are also mentioned in the same folder, and are fully described and illustrated in other literature which will be sent upon request.

Metal expanding tools and machinery are illustrated and described in a pamphlet entitled "Lovekin Tools," issued by the Scully Steel and Iron Company, Chicago, Ill. It is stated that the tools and machines described are for expanding and flanging pipes from the smallest size boiler tube to the largest lap-welded piping made, and for expanding valve seats in gate, globe, or angle valves. It is claimed that these tools are based on a new mechanical principle, that they are of simple construction and easy to operate. Copies of the pamphlet will be forwarded upon application.

The Mc'Creery cooling, heating, ventilating, cleansing, and humidity-regulating system for ships is handsomely illustrated and concisely described in a catalogue issued by Joseph McCreery & Son, Toledo, Ohio. This system is in use, so the catalogue states, on the Fall River liner *Puritan*, on several United States transports and training ships, on the steamers *Northland, City of Mackinac, City of Cleveland, City of Erie*, and other ships which ply on the Great Lakes, on vessels of the Old Dominion line, and on many other vessels both in the navy and merchant marine. In the boiler and engine rooms of steamships the cooling system is claimed to be invaluable. Delays on account of heat in the engine and boiler rooms of ships are said to be impossible if the McCreery system of cooling is in operation.

Motor boats and gas engines are described in a handsomely illustrated catalogue issued by the Lozier Motor Company, 1 Broadway, New York city. The catalogue describes in much detail the various types of boats manufactured by this company, and numerous handsome illustrations accompany the text, giving an accurate idea of the construction and fittings of the boats, both inside and outside, together with the many yachting appurtenances furnished by the company, such as removable standing roofs, collapsible spray hoods, cabin furniture and fixtures, steering gear, lockers, seats, and cushions. The Lozier Motor Company makes many styles of power boats, such as torpedo-stern boats, "standard" construction boats, cabin boats, launches of various sizes, hunting cabin cruisers, ocean cruisers, and automobile racing boats. The marine gasoline engines manufactured by the company are of the two-cycle and four-cycle types, and are made in sizes ranging from three to forty horse power. A separate catalogue is devoted to these engines.

WATCH THIS SPACE FOR OUR NUMEROUS SPECIALTIES.

WALWORTH MFG. CO. TOOLS and SUPPLIES for STEAM WATER and GAS USERS BOSTON MASS.

SOLE MANUFACTURERS OF THE FOLLOWING:

Stillson Pipe Wrench.
Walworth Die Plates.
Miller's Ratchet Die Plates.
"Ruff and Tuff" Pipe Dies.
Hill's Solid Pipe Dies.
Hall's Brass Pipe Wrench.
Hall's Cast Iron Pipe Cutters.
Stanwood Pipe Cutters.
C. C. Walworth Pipe Cutters.
Stanwood 3 Wheel Pipe Cutters.
Miller's Ratchet Pipe Cutters.
Ashley Right or Left Nipple Holder.
Hall's Patent Pipe Reamers.
Walworth Heavy Vise, 1/8 to 6 in.
Kingfast Pipe Vise, 1/8 to 2 in.
Hall's Tapping Machines for Street Mains
Smith Friction Hand Tools.
Drill Stocks,
Combination Socket Wrench with Drill Auger Bit,
Screw Driver Stock, &c.
Taps, Reamers and Drills.

JOBBERS SELL THEM—IF YOURS DON'T, WRITE.
New York, Park Row Building. **WALWORTH MFG. CO.,** Boston, 128 Federal Street.
Write for our BLUE CATALOGUE "D." showing complete line of engineers' pipe fitting tools.

Vertical boring and turning mills, manufactured by the J. Morton Poole Company, founders and machinists, Wilmington, Del., are described in an illustrated folder issued by that company. The folder declares that the company's boring and turning mills have been designed to meet the demand for stiff, powerful mills capable of making the most efficient use of high-speed tool steels.

The ratchets manufactured by the Armstrong Brothers Tool Company, 617 Austin avenue, Chicago, Ill., are described in a folder the company is sending out. This folder states that the Armstrong universal rachet will drive a drill in any position where it is possible to move the handle either in a verticle or a horizontal direction, or at any intermediate angle. The rachet has no ball joints, bevel gears, or other complicated parts, and it is claimed that for ordinary work the handle can be rigidly fixed almost instantly.

The steam motors manufactured by the Dieter Steam Engine Company, 113 Liberty street, New York city, are described in a folder issued by the company. The claim is made that the motors are compact, simple in construction, economical in use of steam, and of great durability. In place of slide or piston valves, poppet valves are employed. There are no stuffing boxes, and consequently no packing. The motor is lubricated from the crank case. It is claimed that this motor can be instantly reversed when running at full speed, and that any one inexperienced in mechanics can run it. The company furnishes a launch outfit comprising this engine used in connection with a flash boiler.

The Bureau Veritas, international registry of shipping, publishes a monthly list of wrecks and casualties to ships of all nations. The ships meeting with accidents are classed under the headings of steamships and sailing vessels, and are arranged alphabetically with the following information: Registration number, captain, tonnage, nationality, year built, voyage on which accident happened, date, and particulars. The latter item is given in French and English. Mr. H. Wilkinson, 26 State street, New York city, is chief surveyor for the United States. Mr. Wilkinson, before coming to America, was managing director of the French shipyard Ateliers et Chantiers de Normandie for three years, previous to which he was connected with the British Lloyds.

The Buffalo Geared Hand Blower No. 100 is described and illustrated in a folder issued by the Buffalo Forge Company, Buffalo, N. Y. The folder states that this blower is the development of twenty-six years' experience in hand blowers. All moving parts are enclosed in a protective dust-proof case. Crank motion is transmitted by a double ball-bearing spiral gear. The working parts are made of steel and phosphor bronze. The blower is said to be simple, compact, unbreakable, smooth of action, easily adjustable, and noiseless in running. Buffalo No. 99 blowers, Buffalo portable forges, and the Buffalo No. 66 drill with automatic feed, are also described in this folder, a copy of which may be had for the asking.

"A. B. C." disc ventilating fans are fully but concisely described and handsomely illustrated in Sectional Catalogue No. 161, issued by the American Blower Company, Detroit, Mich. The catalogue states that the increased demand for disc fans during the last few years is due to a growing recognition of the numerous and varied applications in which they are useful. In foundries, machine shops, engine, and boiler rooms, cold-storage plants, etc., their usefulness is becoming more and more recognized as a means for drying, lowering temperatures, removing steam, fumes, and gases. The catalogue describes and illustrates also steel plate fans, mechanical draft apparatus, exhaust fans, dry kiln apparatus, steel dry kiln trucks, heating apparatus for factories and public buildings, dust separators, steam traps, steam engines, governors, volume blowers, steam hot blast apparatus, and sectional base heaters.

Successful Marine Paints

Are simply **ZINC WHITE** paints (if they be white or light tinted). Do you know that? It is worth knowing. It solves the mystery of successful marine work once for all.

FREE: Our Practical Pamphlets:
"The Paint Question,"
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"Specifications for Architects,"
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NEW JERSEY ZINC CO.
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NEW YORK

We do not grind zinc in oil. A list of zinc paint manufacturers is furnished on request.

CONDENSER TUBES

last longest if made of

"BENEDICT-NICKEL"

ELECTROLYSIS is positively resisted because "Benedict-Nickel" is an alloy of nickel and copper.

CORROSION is impossible, as the tubing is so perfectly homogeneous.

Our treatise on "Electrolysis of Condenser Tubes" is very valuable and costs you nothing. Send for it.

BENEDICT & BURNHAM MFG. CO.
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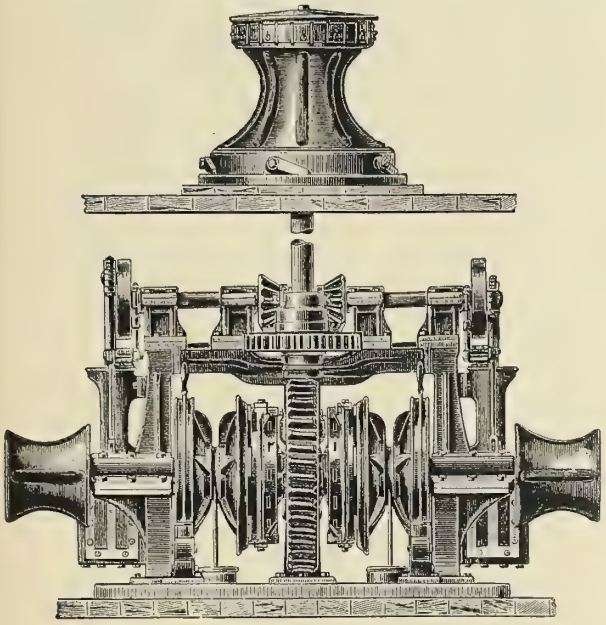
STEERING GEAR
WINDLASSES, CAPSTANS



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The Textile-Finishing Machinery Co.

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NEW YORK OFFICE, 39 CORTLANDT STREET

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We will extend the subscription of any subscriber one month for good copies of *Marine Engineering*, for either

JANUARY,
FEBRUARY,
MARCH,
APRIL,
} 1904

MARINE ENGINEERING, 309 Broadway, New York

A Chance Courtship

is a story of an unconventional love match, well told and beautifully illustrated. As a bit of readable fiction the story is well worth writing for. It is contained in a handsomely bound book of 128 pages, a portion of which is devoted to the attractive mountain and lake resorts along the Lackawanna Railroad. It is a book you will like to see. It may be had by sending 10 cents in postage stamps to T. W. Lee, General Passenger Agent Lackawanna Railroad, New York.

The Champion Rivet Company, Cleveland, Ohio, is distributing a card showing the detail of the boiler drums of the Pacific Mail steamers, riveted with Victor boiler rivets, manufactured by this company.

Motors for hoisting, wound for direct current, are illustrated and described in Circular 1077, issued by the Westinghouse Electric and Manufacturing Company, Pittsburg, Pa. These motors are stated to be especially adapted for starting and accelerating heavy loads.

The Conneaut and Erie Interurban System is the subject of Bulletin No. 44, distributed by the Crocker-Wheeler Company, Ampere, N. J. The generating sets, booster, and other electrical apparatus in the power house were furnished by this company.

Steering gears are the subject of a mailing card sent out by the Edson Manufacturing Company, 255 Atlantic avenue, Boston, Mass. This company also makes a specialty of diaphragm pumps.

Overhead tram-rail traveling cranes, electric carriers and appliances, are the subject of Catalogue No. 18, issued by the Coburn Trolley Track Manufacturing Company, Holyoke, Mass. The company claims that many new mechanical features are embodied in its special form of track; that the rounded troughs are the basis of its strength, and that any load propelled thereon moves more easily and with less friction than is possible with any other shape. It is stated that the enclosure of the carriers within the track obviates the possibility of derailing or obstruction.

Forges, blowers, planing mills, steam and electric fans, generating sets, engines and dynamos, and other auxiliary machinery, are described and illustrated in Catalogue No. 115 issued by the B. F. Sturtevant Company, Jamaica Plain, Boston, Mass. The company states that the great diversity of its products necessitates their treatment in separate catalogues, which are now so voluminous, aggregating over thirty, that a complete general catalogue seems impracticable. By a process of selection and condensation the essential types are presented in Catalogue No. 115, copies of which will be furnished upon request, as will also catalogues regarding specific products.

Metal working machine tools are the subject of an illustrated book of 200 pages issued by the Garvin Machine Company, Spring and Varick streets, New York city. Milling machines, screw machines, forming machines, monitor lathes, chucking lathes, tapping machines, drill presses, cutter grinders, hand lathes, and special machinery are clearly and concisely described. Many novelties appear in the catalogue. The company states that special machine tools are employed to secure the uniform and economic manufacture of its tools, and that almost every piece is worked up with special tools and fixtures, assuring accuracy and uniformity. Component parts are manufactured on the interchangeable plan, and are kept in stock.

Anti-friction metal and red metallic gasket metal, manufactured by A. Allan & Son, 1 Desbrosses street, New York city, are the subject of a book of testimonials distributed by the above-mentioned firm. The Metropolitan Street Railway Company, New York city, the National Lead and Oil Works, 28 Burling Slip, New York city, the Pennsylvania Iron Works Company, Philadelphia, Pa., Armour & Company, Chicago, Ill., are among the well-known concerns who have written to express their approval of the Allan anti-friction metal. Regarding Allan's special red metallic gasket metal, a folder issued by the firm states that it is guaranteed not to blow out at 300 pounds steam pressure, and that heat will not affect it. Being a soft and pliable metal it is claimed that its use will render the most defaced and imperfect joint tight.

Buffalo steam pumps are the subject of a folder issued by the Buffalo Steam Pump Company, Buffalo, N. Y. This company's boiler feed pumps, suitable for presure up to 150 pounds, are stated to be of modern design, with all parts of great strength and durability. Each pump is provided with a full complement of wrenches. drain cocks, and sight feed lubricator.

"An Oily Tale" is the subject of an instructive as well as amusing booklet issued by the A. W. Harris Oil Company, 325 South Water street, Providence, R. I. An entertainingly illustrated account is given of the trials and tribulations of "Bill, the Engineer," and how, after using Harris oil, all his troubles vanished and he had little to do but pour on oil occasionally, smoke, and play checkers with the "old man."

Horizontal low-service compressors are the subject of Bulletin L-511, distributed by the Laidlaw-Dunn-Gordon Company, Cincinnati, Ohio. The company states that it includes under this title all compressors built for pressures of 30 pounds or less, although most of the space in the bulletin is devoted to non-jacketed machines, proportioned for pressures of 8 or 10 pounds. The machines are built with open suction for supplying air at low pressures, or with closed suction for handling carbonic acid and other gases.

Dynamos and motor generators are the subject of Bulletin No. 302, issued by the Holtzer-Cabot Electric Company, Brookline, Mass. The bulletin is an illustrated pamphlet of 32 pages, and should be of value to those interested in transformers, dynamotors, motor generators, boosters, etc. This company publishes bulletins on the subject of gas-engine ignitors, electric lathe motors, interior telephone systems, magneto generators, circuit closers, and many other subjects of interest to electricians, any one of which will be sent free upon application.

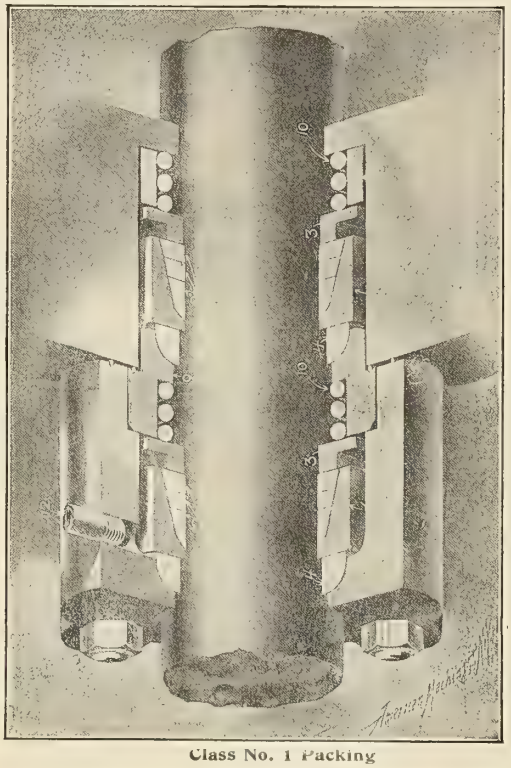
Centrifugal pumps are described and illustrated in Catalogue W-50, issued by Henry R. Worthington, 114 Liberty street, New York city.

"Plate Metal Construction" is the title of a pamphlet issued by the Coatesville Boiler Works, Coatesville, Pa. Tubular boiler fronts, self-supporting wrought-steel stacks, stand pipes, internally fired corrugated furnace boilers, digestors, compound separators, heating boilers, and other plate metal work are illustrated and described.

The Stanley Electric Manufacturing Company, Pittsfield, Mass., is distributing a pamphlet entitled "Synopsis of the S. K. C. System." This synopsis is designed to give an outline of the products manufactured by the company, which are said to be constantly developed to meet new conditions. Bulletins devoted to new apparatus are issued from time to time and the older bulletins revised as is required.

Direct current generators and motors are illustrated and described in Catalogue No. 61, issued by the National Electric Company, Milwaukee, Wiss. The catalogue states that the generators and motors manufactured by this company combine those features of design, material, and construction which have been found most desirable by experience; that they are liberally rated, are compact, substantial in construction, and neat in appearance.

The Alden absorption dynamometer, manufactured by George I. Alden, 48 Queen street, Worcester, Mass., is described and illustrated in a pamphlet, which will be sent upon application to Mr. Alden. The pamphlet states that builders of gas engines, steam engines, electric motors, and water wheels may know, by the use of this dynamometer, the capacity and efficiency, under various conditions of speed and load, of the motors they place on the market.



Class No. 1 Packing

Metallic Packing

designed for one engine may not be suitable for another engine, therefore we design packing to fit he special condition met with Thus, packing which we apply to high-pressure rods is generally different from that for low-pressure rods.

Our great success is due largely to the fact that we consider each case separately, give a man exactly what is best suited for his engine.

We consider Class One packing, shown in the cut, to be the best on the market for marine and stationary work. This is a double packing, each set being complete in itself. The upper set of babbitt metal rings does most of the work, while the second set is in reserve in case any water or steam happens to leak through the first set. Should the first set fail, the second is on the rod ready for service

Our Packings Run for Years Without Attention.

Catalogue, Prices, and List of Users on Application.

THE

United States Metallic Packing Company

Main Office and Works, 427 No. Thirteenth Street, PHILADELPHIA, PENNA.

CHICAGO, 509 Great Northern Building SEATTLE, Moran Bros. SAN FRANCISCO, W. H. Pierson

BUSINESS NOTES.

A new rudder hanger has been placed on the market by the Prouty Manufacturing Company, 35 Oliver street, Boston, Mass. This device is said to be so simple that a child can hang the rudder even when the boat is moving rapidly or in rough water.

A new motor chain compound is made by the Joseph Dixon Crucible Company, Jersey City, N. J. The company states that this compound is especially prepared for the heavy chains of motor vehicles, and that it will not catch sand or dust.

A New Yacht and Engine Company.—The Excelsior Yacht, Launch, and Engine Company has erected a shop at Camden, N. J., and will engage in the manufacture of yachts, launches, and gas engines. Matteson & Drake, naval architects, The Bourse, Philadelphia, Pa., will design and supervise the construction of the hulls, and see that the motors are properly installed. Buying, selling, exchanging, repairing, painting, and winter storage will also be engaged in.

A Satisfactory Engine.—The Dutton Engineering Company, Perth Amboy, N. J., has received the following letter from Warren Cowles, Peoria, Ill.: "Your engine, as I have always thought, is the best that ever happened. Now, I have seen many gasoline engines—many good ones—but none of them are in the same class. I have had occasion to know all about this, and after three years of trouble and no pleasure I'm frank to say I've lost about three years of my life. You can use me any time you desire, and if my word is doubted I can show them. There is one thing certain—*the engine will run all the time.* I beg to remain the best pleased friend you ever sold an outfit."

THE PROFESSOR ON SHIPBOARD

A STORY

NOTHING has ever been published which contains so much every-day information which every engineer ought to know, as this book. In addition to the practical information it contains, it is a most readable story of life at sea. There are twelve chapters, as follows: I, In the Fireroom; II, Hardships of Firemen; III, Night Watch in a Gale; IV, Interview with Barney, the Oiler; V, Some Points on Lubrication; VI, Why Engines are Non-efficient; VII, Salt Water and Boiler Scale; VIII, Cleaning Boilers in a Tropical Port; IX, How to Use Indicators; X, Simple Explanation of the Indicator; XI, Overhauling the Machinery; XII, Painting the Pipe System. 100 pages. By C. A. McAllister. **Price $1.00 Postpaid.**

For sale by MARINE ENGINEERING
309 Broadway, - - New York City

Forgings of Every Kind, and made for any specifications or requirements, including steamship work, are supplied by Mason G. Worth & Company, Real Estate Trust Building, Philadelphia, Pa., who will furnish blue prints and specifications upon application.

Will Insure Its Employes.—The Crocker-Wheeler Company, Ampere, N. J., will give its employes, so it is reported, the benefit of an insurance plan which it will soon put in operation, the company paying all the expenses. The lives of all men who have been in the company's service for three years, and are in good standing, will be insured at the company's expense. If any employee cannot pass the medical examination, an amount equivalent to the premium which would be paid will be placed in a savings bank to draw interest, and will pass to his family at his death.

Broken staybolts, bad water, and imperfect combustion are stated by the Falls Hollow Staybolt Company, Cuyagoga Falls, Ohio, to be the chief factors in causing excessive motive power expenses. In a pamphlet issued by the company much information is given regarding the use of hollow staybolts in marine and railway boilers, and the results of tests made on hollow and solid staybolts are given. It is stated that the Falls Hollow Staybolt Company's staybolt is a piled iron—it is fibrous, the fibers long and made homogeneous by several workings; the material worked being the best charcoal iron. Numerous discussions by engineers regarding staybolts are included in the pamphlet, and any one interested in the subject should not fail to send for a copy.

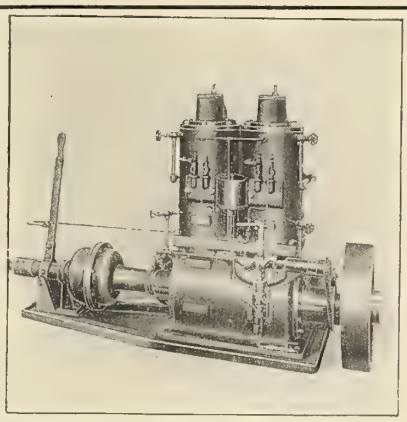
A novel gas-engine starting device and electric-light plant has just been installed on the launch *Aranca,* owned by Arnold Schlaet, New York city, by the Richardson Engineering Company, Hartford, Conn. It is one of the most complete electric-light plants this company has installed, consisting of generator, storage batteries, completely appointed switchboard, special flat type of ceiling lamps, side lights, binnacle light, riding light, anchor light, portables, etc. The outfit is arranged so that one may start his gasoline engine by operating a motor starting box located at the steering wheel, which draws current from the storage batteries, and, using the generator as a motor, turns the engine over the revolution or so that is necessary for it to pick up. The lense mirror arc search light, which is located well forward, is also controlled near the steering wheel, and has a switch at this point giving entire command of the search light, engine, and steering wheel from one point. Another feature of this installation is the fact that a new form of incandescent lamp is used which is of the flat door-knob shape with silvered back, thus doubling the amount of light. The lamps have double filaments to give double life. It is a very complete equipment for the launch and the comforts and advantages are many.

THE MIETZ & WEISS
Kerosene and Gasoline Engines

Marine and Stationary, 1 to 60 H. P.

Adopted by United States and Foreign Governments.
Runs with common Kerosene, Distillate or Fuel Oils. It will pay you to consult me before placing your order elsewhere.

For Propelling Boats, Pumping, Electric Lighting, Charging, and all other purposes Direct Coupled or Belted Dynamos. Highest Award Direct Coupled Engine and Dynamo, Paris Exposition, 1900. Gold Medal, Pan-American Exposition, 1901. Gold Medal, Charleston (S. C.) Exposition, 1902.



A. MIETZ, 128-138 Mott Street, New York, U. S. A.
Send for Catalogue, Dept. 110.
Hoists, Pumps, Air Compressors, Portable Outfits, Dynamos.

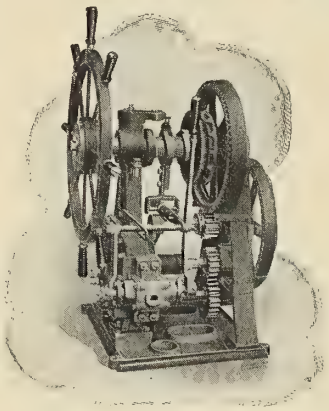
CARE OF MARINE BOILERS.—Mr. William J. Kennedy, who for twenty-seven years had charge of the boilers of the many vessels connected with the American line, has established himself at 89 West street, New York city, as a general contractor, and to supply all classes of labor. Mr. Kennedy will make a specialty of looking after boilers in vessels of all kinds, and making repairs in connection with tubes, furnaces, and back ends, together with scaling and cleaning them, etc. Another feature of his business is the care of hulls and bunkers, together with scaling bilges, painting ships, etc.

OIL AND GRAPHITE FOR AIR CYLINDERS. An engineer writes the Joseph Dixon Crucible Company, Jersey City, N. J., as follows: "I have been using Dixon's finely pulverized flake graphite, No. 635, in air cylinder of air pump with most satisfactory results. I mixed about a tablespoonful with half-pint of cylinder oil and put it in squirt can, and have been giving the air cylinder (through oil cup) about half a teaspoonful in twenty-four hours. Of course I keep the contents in the can well shaken up. Before I used the graphite, pump was running hot and groaning and squeaking all the time. Since using the graphite and cylinder oil in the manner mentioned I have not heard a groan or a squeak, and the pump runs cool and will pump all the air wanted at any time."

REPORTS ON SHOP CONDITIONS deal with the numerous factors which make up the complete manufacturing plant. They are written with two purposes in view—the immediate betterment of present conditions and a systematic policy to follow for future growth. It is well understood that nearly every shop is particularly efficient in some directions, but weak in others. A concern that can combine the good features of all will readily distance competitors. The preparation of these reports is the specialty which has come to be known as "modernizing," and a firm which has been successful in this field is Dodge & Day, modernizing engineers and contractors, Nicetown, Philadelphia, Penn. This firm issues three instructive bulletins—Nos. 123, 136, and 144. The latter is a comprehensive pamphlet explaining the nature of the service rendered, is fully illustrated by charts, and quotes specific cases of work completed for well-known industries. The character of the firms employing Dodge & Day is seen in the mention of a few: Link-Bolt Engineering Company, Westinghouse Electric and Manufacturing Company, Ingersoll-Sergeant Drill Company, Firth-Sterling Steel Company, Jeanesville Iron Works Company, New Haven Manufacturing Company, Phœnix Cement Company, and others of equal prominence

ANNEALING SPOTS IN ARMOR PLATE. A special application of the thermit process of welding has been found in the annealing of spots on armor plate, the face of which has been hardened by carburisation. It is impossible to work such plates with chisel or drill, and the spots up to the present have had to be heated by an oxyhydrogen flame, or by electricity. Both are exceedingly slow processes, as the application of the flame has to be altered repeatedly with the work of drilling. For annealing electrically a very bulky equipment is necessary. The plate will be annealed right through by pouring the liquid thermit (over the rim of a flat-bottomed magnesia crucible) so as to have a layer about one inch thick on the spot. This is left to cool for about an hour, and is then removed. The annealing is localized, the material outside the annealing zone remaining perfectly hard. The operation is based on the well-known property of the alumino-thermic reaction, that the two layers formed in the crucible after the mass has burned down, are perfectly distinct; the lighter aluminum slag floating on the top, and the heavy liquid metal resting on the bottom. The slag will coat with a thin layer any metal object with which it comes in contact, and is so absolutely refractory that the highly overheated liquid steel cannot burn through it. The Goldschmidt Thermit Company, 43 Exchange Place, New York city, is the American agent for thermit.

THE DAKE PILOT HOUSE STEAM STEERER.



A Simple, Compact and Durable Machine.

Occupies Small Floor Space.

Write for descriptive circulars and prices.

THE DAKE ENGINE CO.,

GRAND HAVEN, MICH.

NEW YORK OFFICE, ROOM 612. 85 LIBERTY ST.

THE MERRILL-STEVENS ENGINEERING COMPANY, Jacksonville, Fla., has equipped its plant with oil-burning furnaces. The company is about to build new shops and a large drydock, capable of docking the Clyde Line ships.

THE HYDE WINDLASS COMPANY, Bath, Maine, reports that it is building several electric capstans for the floating drydock now building for the government for Cavite, Philippine Islands.

A KEY RING with an identification tag will be sent upon application to any reader of MARINE ENGINEERING by the Garlock Packing Company, 136 Liberty street, New York city.

THE WATSON-STILLMAN COMPANY, manufacturer of hydraulic jacks, has removed its office and stock from 204-210 East 43d street to 46 Dey street, New York city. The company's machinery has been removed to its new works at Aldene, Union County, N. J.

A NEW CORPORATION.—W. S. Hill and F. A. Ensign, advertising agents, at Pittsburg, Pa., doing business under the name of W. S. Hill & Company, have formed a corporation under the name of the W. S. Hill Company. The incorporation was needed because of the great increase of the firm's business.

THE GASOLINE STORAGE TANKS for motor boats manufactured by Alfred B. Sands & Son, 134 Beekman street, New York city, are intended to add greatly to the safety of a gasoline launch, as it is claimed the tanks are so constructed as to render leaks impossible, thus avoiding all danger of explosions.

THE ENGINEERING SPECIALTIES manufactured by The Lunkenheimer Company, Cincinnati, Ohio, are exhibited at the St. Louis fair in Machinery Hall, location 5-G, Block 26. Those interested in valves, whistles, and all other engineering specialties will find this company's exhibit well worth looking up.

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TRADE PUBLICATIONS.

Electric motors, direct connected to machinery in manufacturing plants, are the subject of a folder issued by the Northern Electrical Manufacturing Company, Madison, Wis. This folder is entitled "An Old Saw with Re-Set Teeth," and calls attention to the economy of using direct-connected motors in place of using shafting, belting, etc., with the necessary loss of power.

Gas and oil engines are the subject of an illustrated catalogue issued by A. Mietz, 128 Mott street, New York city. Regarding the marine type of oil engines the catalogue states that they are furnished with reversing clutch, propeller, stuffing box, coupling, and wrenches. These engines are made in sizes from 1 to 60 horse power, weighing from 175 pounds to 3,500 pounds. The catalogue contains many testimonials from users of the engines.

A vest-pocket launching guide is issued by the White Craft and Power Company, Port Richmond, Staten Island, N. Y. This is a cloth-bound booklet of 72 pages and will be sent upon receipt of ten cents. It contains much information useful to yachtsmen, such as water distances between well-known points, explanations of compass terms, location of light stations, giving height and characteristics, measurement rules and formulæ, yacht-club flags (with colored plates), time computation on the Atlantic coast, etc.

Drawing tables, map cases, blue printing apparatus, and other draftsmen's supplies, are described and illustrated in catalogues issued by the American Drafting Furniture Company, Rochester, N. Y. Regarding its adjustable drawing table a folder states that it possesses lightness, strength, durability, and compactness when not in use. It may be adjusted to many positions, whether for drafting, sketching, or painting. A person may use it either standing or seated. This table is provided with a ledge for holding triangles and other drawing instruments, and with a side shelf for ink or paint which remains level whatever may be the position of the table.

The Webster Feed-water Heater and Purifier is the subject of an illustrated folder distributed by Warren Webster & Co., Camden, N. J. This folder states that the Webster heater admits the precise amount of exhaust steam which is required for the heating of the incoming water, the amount of which is governed by the boiler requirements, and as it enters the heater the water is sprayed and condenses the exhaust steam present, forming a partial vacuum, which, in turn, induces a further flow of exhaust steam into the heater. It is stated that the exhaust steam is not only condensed but that its energy of motion is arrested, and its water of condensation falls with the now highly-heated incoming water into the filter and purifier below, there to be cleansed and freed from any impurities, and then to rise highly heated and ready for the boiler feed pump.

A new feed-water heater, purifier, and oil separator is described in a pamphlet published by J. G. Duck, Milwaukee, Wis. This invention is manufactured by the Steam Appliance Company, Milwaukee, Wis. The inventor claims as a novel feature an open spiral chamber, wherein the supply water winds down an incline having a tight bottom, with sides extending upward far enough to prevent the supply water from overflowing. The spaces between these descending spirals form the passage ways for the exhaust steam. The steam ascending envelopes the descending water, causing it to absorb the heat in the exhaust. Another feature claimed is the eccentric coil in the supply pipe which retains the water long enough in the steam storage chamber to remove the chill before it is sprayed into the spiral. The device is constructed entirely of cast iron, brass, and copper. Diagrams accompany the pamphlet, naming and describing the working parts of the invention.

When writing to advertisers please refer to MARINE ENGINEERING.

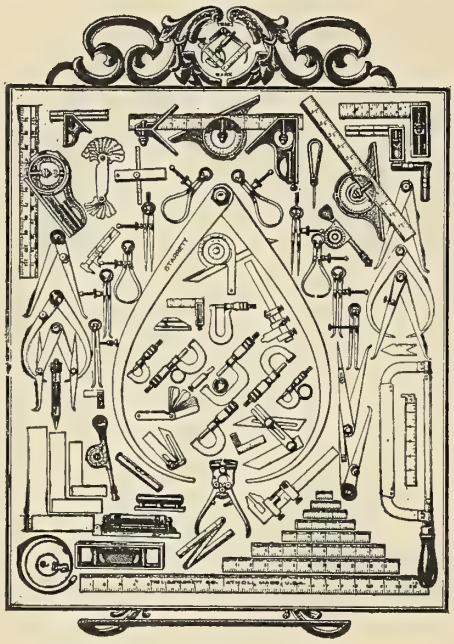
Tackle blocks, cargo hoists, diaphragm pumps, trucks, wagon jacks, etc., manufactured by the Boston and Lockport Block Company, 160 Commercial street, Boston, Mass., are illustrated in a folder with a card-board cover made in imitation of a block, which this company is distributing.

Marine gasoline motors are described by the Buffalo Gasoline Motor Company, 1280 Niagara street, Buffalo, N. Y., in an illustrated catalogue it is sending out. The catalogue states that the Buffalo motors have solid one-piece, steel-forged crank shafts, and mechanically operated inlet valves. All motors are equipped with metal enclosed bases, with detachable panels, so that access to all parts is easy. Solid-steel forged valves are used. There are five heavy bearings in the base of the motor, assuring firm journals for crank shafts. These bearings are held in place by double lock nuts and split keys. Motors are completely water jacketed, including head and valves. There is no packing on motor except in the water jacket. The Buffalo engines are of the four-cycle type, and are made in sizes from 2 to 40 horse power.

The pumping machinery manufactured by Fairbanks, Morse & Co., Chicago, Ill., is illustrated and described in an eighty-eight-page catalogue published by that company. Air pumps, ballast pumps, bilge pumps, boiler feed pumps, circulating pumps, duplex power pumps, geared pumps, hydraulic pumps, marine pumps of many styles, vacuum pumps, and a great variety of other pumps, and pumping machinery are described in this catalogue, which states that the company is continually adding to its line of patterns, and is prepared to offer a pump suitable for almost any service to which direct-acting pumps can be applied, and that it is impossible to mention in one catalogue all the different sizes and types the company makes. Numerous diagrams are given, describing and naming the working parts of the Fairbanks-Morse pumps.

Cutting-off tools, bell centering punches, and all-steel miter boxes are described in a folder sent out by the Goodell Manufacturing Company, Greenfield, Mass. Regarding the cutting-off tool the folder states that it is a great time-saving device, and that it quickly and smoothly cuts any kind of round stock up to one-half inch in diameter. It may be used, it is claimed, with any lathe, the jaws of the tool holding the stock to a running fit, the cutter being instantly fed into the work by a pressure of the handles. It is constructed with a stop, enabling square and even lengths to be cut away with great rapidity. The centering punch is said to quickly and accurately center both round and square stock. The miter box, the folder states, is made entirely of Bessemer steel, thus avoiding all liability of breakage. It has automatic stops to hold up the saw, allowing the operator to use both hands in placing the work.

Marine gas and gasoline motors, reversible propeller wheels, and launch trimmings, are described in an illustrated catalogue issued by the Hildreth Motor and Pump Company, Lansing, Mich. The Hildreth motors are of the two-cycle type. The cylinders and pistons, so the catalogue states, are cast from a mixture of irons selected especially because they are of sufficient density and hardness to resist wear. The cylinders are bored four times with especially designed tools. The pistons are turned and the rings are turned and bored, then cut in two and sprung together, and clamped and turned to the exact size of the cylinder bore to make an absolutely gas-tight job. The cylinder and cylinder heads are water jacketed. Crank shafts are forged from a solid-steel bar. The connecting rod is bronze. The cylinders are equipped with sight-feed lubricators. The ignitors are of the make-and-break or jump-spark types, as may be preferred. The crank is entirely enclosed in the body of the engine, preventing dust and grit from getting into the end of the cylinder, with the result, the company claims, of greatly prolonging the life of the engine.



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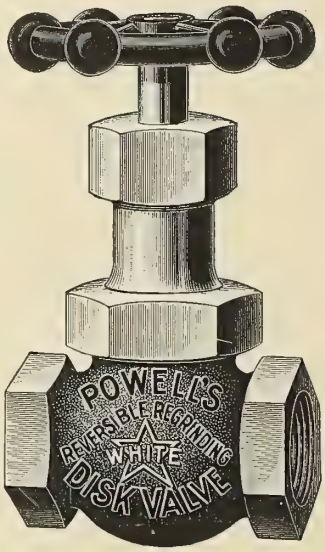

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Free exhaust valves are discussed in a circular letter mailed by Schutte & Koerting Company, 12th and Thompson streets, Philadelphia, Pa.

Air and gas compressors are illustrated and briefly described in a pamphlet issued by the Rand Drill Company, 128 Broadway, New York city. Of the Rand-Corliss Class BB compressor, the pamphlet states that for permanent installations, particularly for centralized plants, it has been found to be very durable and economical. This compressor is of the duplex pattern, built with both girder and tangye frames, for running either condensing or non-condensing, and with all combinations of duplex and cross-compound steam, air, or gas cylinders. The Class B compressors are of the girder frame duplex pattern type, with the steam and the air cylinders tied tandem to each other. The Imperial Type 10 steam-driven compressors are of the duplex pattern, employing a heavy box bed with the steam and the air (or gas) cylinders at opposite ends, and the balance wheel nearly in the center. They are self-contained and self-oiling. The steam cylinders on Type 10 are made both duplex and compound. Class C straight line steam-driven compressors are for hard usage, when the machine is to be moved from place to place and to receive little attention. Several other types of compressors are described in this pamphlet, a copy of which may be had upon application.

Canoes are discussed in a folder sent out by the Old Town Canoe Company, Old Town, Me. Strength and thorough protection from moisture are among the advantages claimed for this company's product.

The Rogers' Universal Cost System, devised by W. S. Rogers, of the Bantam Manufacturing Company, Bantam, Conn., is illustrated and fully described in a pamphlet published by Mr. Rogers. This cost card system is the result of Mr. Rogers' many years of experience as an office and factory manager and owner, and aims to inform the manufacturer of the exact cost of a piece of work, and whether any unnecessary labor has been expended upon it, thus securing the greatest possible output with the least possible expense. Shipyard and factory managers will find this pamphlet of value.

Blow-off valves and brass globe and angle valves are the subject of a folder issued by the Star Brass Manufacturing Company, from its New York city office, 38 Cortlandt street. Of the blow-off valves the folder states that they are guaranteed to close tight and always remain so, that they are not affected in any way by scale or dirt, and that the highest steam pressure does not affect their opening or closing. Regarding the globe and angle valves the folder says that they are tested to 500 pounds pressure, that they are warranted not to leak, and that all working parts are renewable.

Drawing paper is the subject of a folder issued by the Kueffel & Esser Company, 127 Fulton street, New York city. The folder states that of the various materials used by draughtsmen none require more careful selection than drawing paper. Instruments, scales, pencils, inks, etc., may be replaced when unsatisfactory, but drawing paper cannot be replaced without destroying all the work that has been done on it. The Keuffel & Esser papers are mounted stretched, and are air dried. The company's 500-page catalogue of drawing materials, surveying instruments, and measuring tapes will be sent free upon application.

The proper lubrication of pneumatic tools is discussed in a folder issued by the Philadelphia Pneumatic Tool Company, 22d street and Allegheny avenue, Philadelphia, Pa. The folder states that this form of lubrication is one of the most difficult problems of modern mechanics, as the tools run at very high speed in dry air and under great pressure. Ordinary petroleum oils, so it is stated, when used on pneumatic hammers or drills, are soon evaporated or carbonized, leaving the working surfaces dry and bare. If to prevent this, heavy animal oils are used they quickly gum under the action of the air, clogging the tool, and reducing its speed. In order to meet these difficulties the Philadelphia Pneumatic Tool Company has placed on the market a lubricator called "Pneulubric," which is made in two forms, liquid or solidified. The liquid form is intended for use on pneumatic hammers, riveters, and air compressors, and the solid form is for rotary drills.

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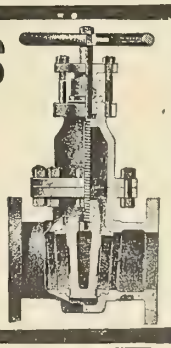

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The Triangle Protractor Company, Worcester, Mass., calls attention in a mailing card to its 9-inch, 45-degree, all-celluloid triangle, with a sliding bar protractor that can be read to ten minutes.

The steam yachts, launches, passenger boats, tugs, gasoline launches, and other craft built by William R. Osborn, Croton-on-Hudson, are described in an illustrated 50-page catalogue just issued, which states that Mr. Osborn builds boats of all descriptions, either from his own design or from the designs of others.

Graphite pipe joint compound is the subject of a booklet sent out by the Joseph Dixon Crucible Company, Jersey City, N. J. This compound is said to make thoroughly tight joints for steam, water, air, oil, brine, and gas piping, and the claim is made that it resists heat, cold, acids and alkalies, and that it protects the threads from corrosion of every sort.

The steam traps for marine use manufactured by Richard J. Flinn, West Roxbury, Mass., are the subject of a folder illustrating and describing these traps. It is stated that the Flinn traps will work against any back pressure less than the pressure in the trap, or they will discharge to a higher level than the traps—that is, to a height of about two feet for every pound pressure carried.

A pamphlet describing the works of the Westinghouse Electric and Manufacturing Company, East Pittsburg, Pa., discussing their industrial and sociological aspect, profusely illustrated and handsomely bound in several colors, is the latest product of the publication department of that company. The electric machinery manufactured by this company is but lightly touched on, the object of the pamphlet being to describe the company's plant and the life of its employees.

A portable forge and furnace manufactured by F. W. Braun Company, San Francisco, Cal., is described and illustrated in a booklet issued by the company. The booklet states that the machine can be easily removed from place to place without taking it to pieces. The fuel used is gasoline, which is burned in a Cary hydrocarbon burner, giving a flame of great intensity, which, with the peculiar construction of the furnace and forge, adapts it to a wide range of use. The furnace is claimed to heat metal evenly, quickly, uniformly, and without producing scale.

Slotting machines are illustrated and described in Catalogue 38, issued by the Newton Machine Tool Works, Philadelphia, Pa. The catalogue states that all sizes of these machines have relief tool apron and quick-return motion. All sizes above the 10-inch stroke of the fixed type have an adjustable ram guide. The circular tables of these machines are graduated and have a full bearing on the lower saddle, the worm wheel being set in the saddle, and the tee slots for clamping the work have ample metal over wing of slots. Carriages have quick-acting, variable-feed motion in all directions. Rod drilling machines, cold saw cutting-off machines, saw grinding machines, and other machine tools are also illustrated and described in this catalogue.

Double-acting air pumps and jet condensers are illustrated and described in a folder issued by Dean Brothers' Steam Pump Works, Indianapolis, Ind. Regarding the 10 by 16 by 12-inch pump and condenser the folder states this is a new type of air pump and condenser. The air pump cylinder is double acting. There are no valves in the piston. Both suction and discharge valves are in the valve chest at the side of cylinder, hence the valve area is not limited by the size of the piston. All valves are quickly accessible through hand holes. The piston rods are separable at the cross heads. Tapering keys are used to hold them in place. The cylinder head can be easily removed and taken out of the way, for inspecting interior of cylinder or for repacking the piston. The piston rod stuffing box is provided with a water seal to prevent air from entering. There are no "air pockets" in cylinder or passages.

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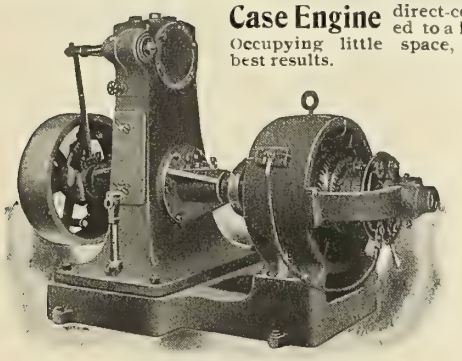

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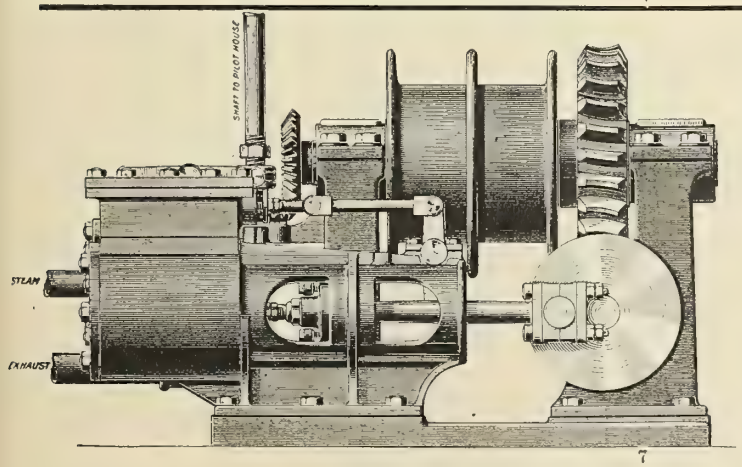
The monthly calendar of the Crandall Packing Company, 123 Liberty street, New York city, may be had for the asking. This calendar calls attention to Helios high-pressure ring packing for marine work, and to the many other varieties of packing made by this company. Of the marine packing the calendar states that it is made in rings—a fit for rod and box—or put up in coils from which the engineer can cut rings to suit his special requirements. It has a rubber-cored center providing a cushion for the rod to work against, and it is claimed that it will not burn or blow out under the highest pressure.

Yachtsmen and yacht and boat builders will want a copy of the handsomely illustrated 64-page catalogue issued by the Racine Boat Manufacturing Company, Muskegon, Mich. This company was in business twenty-one years at Racine, Wis., but in May, 1903, its entire plant was destroyed by fire. The business of the company had grown to such an extent that the water frontage to be had at Racine was not sufficient, so that a new fire-proof plant has been erected at Muskegon, Mich., occupying 10 1-2 acres of dock property, including facilities for building almost any style of vessel from a 21-pound racing shell to a 300-foot steam vessel. Motor boats of all sizes, cabin launches, working boats, racing machines, gasoline motors, water-tube boilers, marine steam engines, wooden and steel steam and gasoline yachts, shallow-draft turbine steamers, sailing craft of many types, row boats, canoes, life preservers, and other yachting accessories are fully illustrated and concisely described in this catalogue, a copy of which will be forwarded upon application.

The steam steering gear made by the Dake Engine Company, Grand Haven, Mich., is illustrated and described in a folder issued by the company, which states that the Dake steam steering gear has been designed to meet the wants of both tug and vessel owners for a light, compact, and efficient machine for pilot-house service. It consists practically of two standards on a flat base, supporting a shaft carrying a chain wheel for rudder chain, and also a hand steering wheel. The engine, which is of the Dake type, is made to start, stop or reverse by means of a lever connected to the hand wheel, which is not keyed to the shaft, but revolves loosely, and it requires only a slight movement of the hand wheel to port or starboard to start or stop the gear at any point. Arrangements are made to change the gear from steam to hand power in a few seconds. The gear is equipped with an automatic closing device consisting of a traveling nut, which locks into two stationary ones and closing the steam valve at the hardover points of quadrant. These lock nuts can be adjusted to allow the right quadrant travel. The gear is furnished also with a hand lever attached to throttle valve, and it is optional with the pilot to use either this lever or hand wheel for steering. An indicator is also supplied which shows the position of the rudder at all times.



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New York Office, 39 Cortlandt Street

"Great Lakes" Air Compressors are described and illustrated in a pamphlet issued by the Great Lakes Engineering Works, Detroit, Mich.

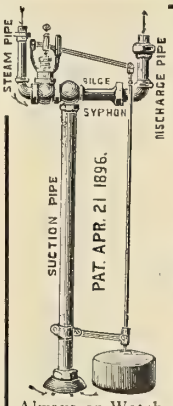
The Garlock Packing Company, Palmyra, N. Y., is distributing a catalogue calling attention to packings and gaskets, which the company states are made in more than a hundred different styles, for every conceivable engineering purpose. This company has opened branches in all the principal cities in the United States, and is thus prepared to make deliveries on short notice from any location.

Yacht plumbing specialties are described and illustrated in a 65-page catalogue issued by Alfred B. Sands & Son, 242 Water street, New York city. No yachtsman or ship builder should fail to send for a copy of this catalogue, for besides the necessities of yacht plumbing there are described a thousand and one little conveniences which no one would willingly be without after once hearing of them. Water heads, smoke plates, sea leads, mooring buoys, ventilators, and other yachting accessories are also listed.

Ten-foot mills, for use of high-power tool steel; 3 by 36-inch turret lathes; 108-inch Bement lathes, electrically driven; 90-inch driving wheel lathes; verticle milling machines; hydraulic angle and bar shears; hydraulic splitting shears, and other machine tools, are described and illustrated in the latest number of the *Progress Reporter*, published by the Niles-Bement-Pond Company, 136 Liberty street, New York city. This publication is issued every few weeks, and any one who may desire to receive free copies regularly will be put on the mailing list upon application.

"One Pound of Coal Compelled to do the Work of Two Pounds of Coal" is the title of a booklet issued by the Asbestos and Magnesia Manufacturing Company, Land Title Building, Philadelphia, Pa. Referring to the non-conducting properties of carbonate of magnesia, which the company uses for its pipe and boiler coverings, the booklet claims that magnesia pipe and boiler coverings will save their cost many times over on account of the great saving of coal, arising from increased steam efficiency, due to lack of radiation. A copy of this pamphlet will be forwarded upon request to readers of Marine Engineering.

Equilibrium circulators, with steam-heating attachment, are illustrated and described in a pamphlet issued by H. Bloomsburg & Co., 712 Dolphin street, Baltimore, Md. The pamphlet states that this device equalizes the temperature of all parts of the boiler, thus preventing the unequal expansion and contraction, with consequent leaks, due to such straining. The steaming capacity is claimed to be increased 5 to 15 per cent., and the deposit of mud and sediment prevented. This company also manufactures a steam jet which, it claims, gives a draft equal to a power fan, and which may be applied to any stack, greatly increasing the draft with a minimum amount of steam.



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Have for sale one 60 h. p. 4 cycle 4 cylinder, jump spark motor; all ready to install in boat. This motor requires much less space than usual, weighs 1300 lbs., is in first class condition, and sold for no fault.

ALSO

One 25 h. p. Buffalo, outfit No. 12 of 1903 catalogue.

ALSO

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All three motors have been used a short time only, have been put in the best of condition by practical workman, and are offered at half price to insure quick sale Better write for particulars.

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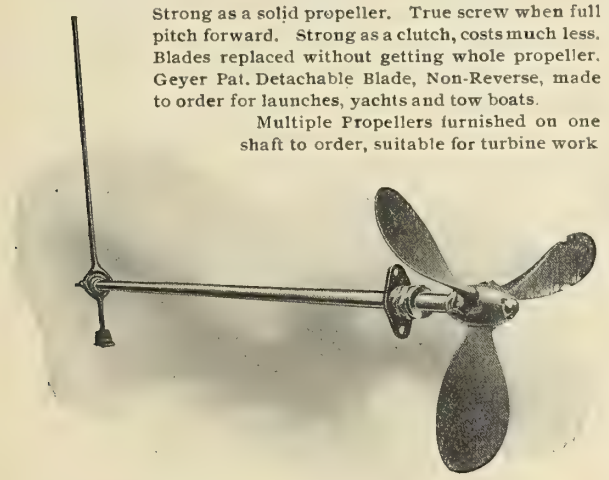

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Chapter I. deals with the early installation of electric equipment.

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Chapter III. deals with wiring and insulation, considers the advisability of installing the steam turbine, advises as to distribution of current, and proper size of mains.

Chapter IV. is devoted to electric fixtures, fittings, joints, ducts, insulation, and other minor details which are of great importance for the successful operation of a plant.

Chapter V. is devoted to a sketch of the most recent practice in the use of electricity for auxiliaries. The use of the electric storage battery on board ship is also considered.

Chapter VI. takes up a specific case of wiring for a small steamer. Two large drawings illustrate the wiring plan at the dynamo, and the location of the distributing panels on board the ship.

An Appendix contains chapters VII. and VIII.

Chapter VII. comprises detail drawings and description of a lighting plant for launches. Written by D. A. Richardson.

Chapter VIII. is devoted to isolated plants with generator direct-connected or belted to a gasoline engine, for lighting sailing yachts, large launches, etc.

The book is fully illustrated.

Price $1.00

PUBLISHED AND FOR SALE BY

MARINE ENGINEERING, 309 Broadway, New York

A book of testimonials from satisfied purchasers, regarding the working of its marine gasoline engines, is issued by the Buffalo Gasoline Motor Company, Buffalo, N. Y.

Electric light plants for launches, yachts, homes, shops, hotels, and summer cottages, are illustrated and described in Bulletin No. 3, issued by the Richardson Engineering Company, 36 Pearl street, Hartford, Conn.

Wire rope lubrication is discussed in a pamphlet issued by the Joseph Dixon Crucible Company, Jersey City, N. J., which will be found interesting to users of wire ropes and cables.

Diaphragm pumps, bilge and deck force pumps, steering gear, and other yacht and ship appliances, are the subject of the latest "hang it" mailing card issued by the Edson Manufacturing Company, 255 Atlantic avenue, Boston, Mass.

The double falcon wrench, "a wrench for the electrical-fixture man, which has 1 3-4 inches off-set to allow work close to the wall or ceiling," is described and illustrated in a folder sent out by the Applied Device Company, Springfield, Mass.

Wire rope and fittings are the subject of a 75-page catalogue issued by the American Steel and Wire Company, The Rookery, Chicago, Ill. Towing hawsers, mooring lines, tiller rope, and ships' rigging are among the products listed.

The electric fans made by the Sprague Electric Company, 527 West 34th street, New York city, are described in a catalogue published by this company. Swivel and trunnion desk fans, 12 and 16-inch fan motors, ceiling fans, and fans of many other types and sizes are illustrated in this catalogue.

"Summer Comforts" is the title of a booklet issued by the Fort Wayne Electric Works, Fort Wayne, Ind. This company's idea of how to keep cool and comfortable during the summer heat is to keep the air in the office, factory, or home in constant circulation by means of a Wood fan motor.

Leather packings are the subject of a folder issued by E. F. Houghton & Co., 240 West Somerset street, Philadelphia, Pa. The folder states that these packings are made from Vim leather, which the company tans especially for its packings, and that they are in use in a large number of manufacturing plants as well as in two departments of the United States government.

BUSINESS NOTES.

ALFRED B. SANDS & SON, manufacturers of yacht plumbing and other marine specialties, have removed from 134 Beekman street to larger quarters at 242 Water street, New York city.

FIVE HUNDRED KINDS of engineers' tools given away.—The fibrous and metallic packing made by the France Packing Company, 6514 State road, Tacony, Philadelphia, named by them the "steam stopper" brand, is intended for air, oil, water, and ammonia, as well as for steam packing. In order to bring this packing into more general use the manufacturer is offering a list of more than 500 tools for engineers, master mechanics, and superintendents of motive power. A full explanation of the method of giving out these tools may be obtained by application to the company.

"GLADIATOR" COMBINATION GASKET.—The New Jersey Asbestos Company, Camden, N. J., reports that this gasket has been on the market long enough to demonstrate its ability to meet the requirements of engineers. The joints have two concentric rings made from "Gladiator" asbestos metallic cloth, which are sustained by a metal ring, the verticle wall in the center of which forms a partition between them, and prevents their displacement by either steam or moisture. By this arrangement a double self-contained joint is made in place of the joint in ordinary use. These gaskets are sold in two forms: those made of "Gladiator" asbestos metallic cloth for the highest pressures, and those made of "Gladiator" millboard for dry steam, and for all joints where asbestos millboard is ordinarily used.

The Shelby Steel Tube Company, Pittsburg, Pa., has an exhibition of its product at the St. Louis fair, in the Transportation building.

The course in naval architecture of the New York Nautical College will be carried on during the summer months in the office of Mr. George Crouse Cook, naval architect and instructor, 52 Broadway, New York city.

"Sheet Packing," "Lubricated Valve Stem Packing," "Vulcabeston Air Brake Pump Rings," "Kearsarge Gaskets," "Hydro Water-Proof Hydraulic Packing," "Asbestos and Rubber-Wound Cloth Packing," and "How to Pack Gas Engine Cylinder Heads," are the titles of folders issued by the H. W. Johns-Manville Company, 100 William street, New York city.

A Marine Bucket.—Charles D. Durkee & Co., 2 South street, New York city, have accepted the agency for Crane's self-sinking galvanized marine bucket. This bucket, it is claimed, is immediately filled with water without dragging, upon lowering it from the side of a vessel. By means of a mechanical device concealed under the ear of the bucket it dives upon striking the water, and comes to the surface in an upright position.

Allis-Chalmers-Bullock, Limited, has taken over the Canadian business of the Bullock Electric Manufacturing Company, the Canadian Bullock Electric Manufacturing Company, Limited, the Allis-Chalmers Company, the Ingersoll-Sergeant Drill Company, the Lidgerwood Manufacturing Company, the Wagner Electric Manufacturing Company, and the Canadian Engineering Company, Limited. The head office and works will be in Montreal, Canada.

The Rhode Island Motor Company, Providence, R. I., reports the following sales: To Mr. S. O. Leavens, Providence, R. I., a 25-foot canoe-stern open launch, with a 6-H. P. Rhode Island motor; to Dr. T. H. Bell, Providence, a 25-foot canoe-stern cabin launch, with a 6-H. P. Rhode Island motor; to General Walker, Providence, a 25-foot cabin boat, with 6-H. P. Rhode Island motor; to Goff Brothers, Riverside, R. I., a 35-foot ferry boat, with a 9-H. P. Rhode Island motor.

"The Organization and Management of a Modern Steamship Company," was the subject of a lecture recently given by Mr. W. L. Guillaudeu, president of the Old Dominion Steamship Company, New York city, to the students of the School of Commerce, Accounts and Finance, New York university, New York city. We understand that copies of this lecture may be obtained from Mr. Richard R. Windon, traveling passenger agent of the Old Dominion line, 81 Beach street, New York city.

Staybolts for Norway.—The Falls Hollow Staybolt Company, Cuyahoga Falls, Ohio, has received an order from the Norwegian State Railway Company for Falls hollow and solid staybolt bars, this being the third order this company has received from the railway during the past year. A portion of the raw material from which the Falls staybolts are made is imported from Norway and Sweden and then blended with native charcoal iron, thus producing the required tensile strength and other requirements. The Falls Hollow Staybolt Company has also received orders from the governments of Japan and other foreign countries, and from the United States govenment.

Rules and Micrometer Calipers.—The L. S. Starrett Company, Athol, Mass., has received a letter from Mr. C. W. Crawford, of the Department of Physics, Lehigh university, South Bethlehem, Pa., in which Mr. Crawford says, speaking of some rules and calipers purchased by the university: "You may be interested to know the results of a test made upon the accuracy of the scales. I have already made a test upon one meter scale taken at random, and find by comparison with our standard meter that the error of your meter scale is not greater than 1000th of 1 per cent., the test being made at 15 degrees Centigrade. No greater degree of accuracy could be asked, and the workmanship of the tools is correspondingly good."

MARINE ENGINEERING
EMPLOYMENT BUREAU.

Full information regarding the purposes of this bureau, together with instructions regarding registration, etc., furnished upon application to Marine Engineering Employment Bureau, 309 Broadway, New York City.

All correspondence, concerning either vacancies or situations wanted, is strictly confidential.

MEN WANTED.

SHIPFITTERS, RIVETERS AND CAULKERS are wanted in a well-known shipyard. File 29.

CHIPPERS AND DRILLERS can find a position in a large shipyard if experienced. File 30.

SALESMAN FOR STEEL CASTINGS, both large and small, is wanted who understands steel casting business and who has acquaintance among purchasers. File 26.

SKILLED BOAT BUILDER who has had experience in handling men, and who can attend to the hull work in large launch works. File 14.

FOREMAN FOR BOAT BUILDING SHOP who has had experience in constructing new hulls, who can attend to repair work and is familiar with gas engines. File 15.

BOILER-SHOP FOREMAN. Must be familiar with various types of marine boilers and capable of handling repair work. Knowledge of shipbuilding and repairs will be of great advantage. File 10.

FORGINGS SALESMAN wanted who is acquainted with the manufacture and use of high-grade forgings, has had experience as a salesman and who has acquaintance in this special direction File 25.

MEN SEEKING POSITIONS.

We have applications registered for positions as follows, and the references of each applicant have been carefully investigated:

ASSISTANT SUPERINTENDENT, ENGINEER OR ASSISTANT ENGINEER IN ENGINEERING WORKS. Age 28; single; of English birth; has British and American licenses and has had several years' sea experience. Application No. 23.

CHIEF OR ASSISTANT DRAFTSMAN—ENGINE. Age 32; married; has had sea experience and several years' experience in government and private shipyards. Application No. 25.

CONSULTING ENGINEER AND NAVAL ARCHITECT. Married; born in Germany; had many years' experience in designing, drafting and surveying. Application No. 33.

DRAFTSMAN—HULL. Age 20; single; experienced in architectural work, but prefers marine drafting. Application No. 51.

DRAFTSMAN—HULL. Age 25; married; 9 years' experience in leading yards in drafting, testing materials, surveying, etc. Application No. 54.

DRAFTSMAN—HULL, OR INSPECTOR. Age 37; married; had experience both in government yards and private yards. Application No. 30.

DRAFTSMAN—HULL. Age 22; single; born in Norway; studied Technical schools in Norway and Germany; experience as draftsman, also as shipfitter. Application No. 31.

DRAFTSMAN—HULL. Age 25; single; born and educated in Germany; has had 7 years' experience in drafting, sea duty as engineer, and as shipfitter. Application No. 52.

DRAFTSMAN—HULL AND ENGINE. Age 26; single; graduated Webb Academy; has had four years' experience in navy yard work; desires connection with private shipyard. Application No. 41.

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ADDRESSES OF CORRESPONDING SECRETARIES.

No. 1, W. D. Blaicher, 10 Exchange St., Buffalo, N. Y.
" 2, Wm. Kelly, 11 Wall St., Cleveland, O.
" 3, A. L. Jones, 289 Champlain St., Detroit, Mich.
" 4, Jas. A. Macauley, 5802 Indiana Ave., Chicago, Ill.
" 5, Otto Boettger, 1035 E. Hopkins Ave., Baltimore, Md.
" 6, Wm. Arste, 322 Pine St., St. Louis, Mo.
" 7, Wm. T. McElwee, Box 1556, Portland, Me.
" 9, Wm. Bridges, 784 1-2 12th St., Milwaukee, Wis.
" 13, John G. Paulding, 1746 Tulip St., Philadelphia, Pa.
" 14, Joseph F. Dumas, 403 Dauphin St., Mobile, Ala.
" 15, R. L. Skinner, 622 Louisa St., New Orleans.
" 17, Jas. D. Robinson, 6th and Columbia Sts., Newport, Ky.
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" 20, Jos. B. Barry, 206 Keel St., Memphis, Tenn.
" 21, J. H. Foley, 206 N. Mulberry St., Vicksburg, Miss.
" 23, Wm. R. Lewis, 213 E. Front St., Jeffersonville, Ind.
" 24, Hugh L. Edwards, 511 Washington St., Paducah, Ky.
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" 27, L. C. Schwall, 598 S. Madison St., Bay City, Mich.
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" 30, E. R. Humphrey, 21 State St., Pittsburg, Pa.
" 33, James J. Waters, 283 Hudson St., New York, N. Y.
" 35, William M. Coombs, 36 East St., San Francisco, Cal.
" 36, Jos. Thomas, 57 Sea St., New Haven, Conn.
" 37, John B. Bender, 1215 Evesham Ave., Toledo, Ohio.
" 38, C. H. Wolford, 73 Starr Boyd Bldg., Seattle, Wash.
" 39, Frank Feeney, 460 E. 12th St., Erie, Pa.
" 40, Chas. Drouet, 1003 Ave. I, Galveston, Tex.
" 41, W. H. Marshall, 343 Holladay St., Portland, Ore.
" 42, Jas. Manning, 802 E. Duval St., Jacksonville, Fla.
" 43, A. J. Wilson, 1327 La Peer Ave., Port Huron, Mich.
" 44, Chas. J. Sullivan, 480 1st St., Manistee, Mich.
" 45, W. L. Salter, Care O. S. S. Co., Savannah, Ga.
" 46, D. W. Farrell, Clayton, N. Y.
" 47, J. R. Cook, Sault Ste. Marie, Mich.
" 48, Alfred Hegemer, 140 E. Park St., Sandusky, O.
" 51, H. S. Connell, 12 Ransom St., Muskegon, Mich.
" 53, Harry Stone, Box 445, Marine City, Mich.
" 55, Archie Stalker, Box 883, Cheboygan, Mich.
" 57, E. B. Meeker, 71 Abeel St., Kingston, N. Y.
" 58, E. Capers Haselden, Box 31, Georgetown, S. C.
" 59, Geo. F. Keating, 74 Webster St., E. Boston, Mass.
" 62, N. S. Lawrence, 30 Connecticut Ave., New London, Conn.
" 63, M. J. Burke, 152 Sheridan Ave., Albany, N. Y.
" 65, W. C. Palmer, Care Consumers' Coal Co., Charleston, S.C.
" 67, James K. Dole, Saugatuck, Mich.
" 70, Chas. T. Smith, 665 Commercial St., Astoria, Ore.
" 72, Wm. T. Findlay, 130 W. Bridge St., Oswego, N. Y.
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" 75, Wm. D. Hemenway, Alexandria Bay, N. Y.
" 76, Orson Vanderhoef, Grand Haven, Mich.
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" 82, Fred H. Gowell, 427 Middle St., Bath, Me.
" 85, John A. Packard, 623 Merchant St., Alpena, Mich.
" 86, Sherman A. Smith, 737 Menekaunee Ave., Marinetta, Wis.
" 87, Geo. B. Milne, 809 Fourth St., Detroit, Mich.
" 88, C. O. Chapman, S. B. Canal, Sturgeon Bay, Wis.
" 89, Geo. E. Willard, 4 Isabella St., Ogdensburg, N. Y.
" 91, A. L. McLaren, 130 W. Walnnt St., Ashtabula, O.
" 92, Jos. D. Budd, Box 50, Sta. I, Saginaw, W. S., Mich.
" 93, W. J. Cook, 2220 G. St., N. W., Washington, D. C.
" 94, Geo. R. Jones, Box 222, Washington, N. C.
" 95, P. J. McMahon, Box 199, Key West, Fla.
" 98, C. N. Vosburg, 323 Patton St., New Orleans, La.
" 100, H. F. Mocine, Honolulu, H. I.
" 101, J. K. Cotton, Box 765, Norfolk, Va.
" 102, Fred W. Linsemeyer, 210 Clinton St., South Haven, Mich.
" 103, A. E. Pittman, Box 378, New Bern, N. C.

TRADE PUBLICATIONS.

A United States consul in South America wishes MARINE ENGINEERING to secure for him all the information possible regarding the following subjects:

Freight steamers, single or twin screw, iron or steel hulls, carrying capacity 600 to 1,000 tons, very economical in the consumption of coal, having a maximum draft, when loaded, of not more than 9 or 10 feet, less preferably; also freight steamers of about 500 tons capacity with 6 or 7 feet draft.

Also passenger and freight boats from 500 to 1,000 tons capacity, with a draft of 6, 7, or 9 feet when loaded, speed of from 15 to 20 miles an hour, and to be very economical in the consumption of coal. The boats are to be of the sea-going type.

All correspondence can be addressed to United States Consul, care MARINE ENGINEERING, 309 Broadway, New York.

The "Perfection" reversing gear, manufactured by the William H. Brodie Company, 45 Vesey street, New York city, is described in an illustrated folder this company is distributing. The claim is made that this gear occupies small space, yet without sacrificing efficiency or strength; that the train of three grears is at all times in mesh, thus eliminating the possibility of stripping the teeth; that the gear is free of taper or clutch frictions; that the friction employed is a powerful expanding ring friction that may be adjusted at any time to accommodate any wear on the friction surfaces, and so arranged that it is impossible to become jammed, and is of such design that the most inexperienced operator cannot injure it. By throwing the lever on the center with the engine going, the screws and gears are at repose; while by throwing the lever forward the screw is driven ahead; and when thrown toward the stern the screw is reversed.

Modern cold storage, a reprint from "Ice and Refrigeration," is published in pamphlet form by the American Linde Refrigeration Company, 120 Liberty street, New York city. Illustrations and descriptions are given of refrigeration plants which this company has installed. The pamphlet states that the company has made a careful study of the carrying of perishable cargoes on board ship, and that it has designed special machinery to meet the requirements of shippers engaged in this trade. The system installed by this company allows the use of the refrigerating rooms for general cargoes at such times as refrigerated cargoes are not available. This system, so the pamphlet states, is used by the Canadian government and is installed on all the principal steamers plying between Europe and Canadian ports. It has also been adopted by the United Fruit Company and by the Northern Pacific Steamship Company on their new boats, the *Minnesota* and the *Dakota.*

Packings for marine and stationary engines are discussed in a pamphlet issued by the United States Metallic Packing Company, 427 North 13th street, Philadelphia, Pa. The pamphlet states: "We make a specialty of packing valve stems and piston rods on steam engines for all pressures and temperatures of steam. We have been making metallic rod packings for a quarter of a century, and have always manufactured them to meet the requirements of the times, and by this constant improvement have kept pace with modern steam engineering practice. United States packings are low in first cost, they are easily applied, and (with the exception of the babbitt metal rings), will last the life of the engine." The main success of this company's packing, so it is said, is due to its flexibility. No matter how badly an engine is of out of line or how much play there is between cross heads and girders, or between piston and cylinder, the United States packings will, the manufacturers claim, float with the rod, thus offering little resistance. The company makes a special provision for draining, and recommends its "Ideal" method of lubrication and draining.

When writing to advertisers please refer to MARINE ENGINEERING.

Graphite for axles is described and illustrated in a mailing card sent out by the Joseph Dixon Crucible Company, Jersey City, N. J. The company will send a free sample to any one addressing Department K.

Marine gas and gasoline engines and reversing clutches are illustrated and described in folders issued by the Holliday Manufacturing and Engineering Company, 160 Bunker street, Chicago, Ill. Regarding the reversing clutch, a folder states that the engine can be run forward all the time. "When the lever is set forward the propeller wheel moves the boat forward and the reversing gears are not in operation, consequently there is no noise. When set in another position the propeller wheel is reversed, and when set in a third position the propeller wheel is stopped. The movement of the lever is very slight and easily operated. Connection is made by sliding one or the other of the frictional hoods onto the frictional cone in the center. These parts are turned absolutely true and will slip in starting so that the power may be applied to the propeller gradually. The operator has perfect control of the propeller, as it may be started or stopped at will without reference to the engine. The reversing gears in the clutch are always in mesh but never in use except when the propeller is reversed, consequently there is no liability of breakage as connection is made."

Ship logs, range finders, and tell-tales, are illustrated and described in a catalogue issued by the Nicholson Ship Log Company, Cleveland, Ohio. Regarding the ship log the catalogue says: "The advantages claimed are (1) Accuracy. When adjusted to the ship, the log will run the distances as close as it is possible to steer the vessel, and will remain in adjustment an indefinite period, if intelligent care is given the apparatus. (2) It is entirely automatic and requires little attention beyond the daily winding of the clock and changing the paper record. Unless the harbor is very shallow no thought need be given to the log when making or leaving port. If the vessel is operated in shallow places, provision is made, while installing, to draw in the intake tube from the pilot house, or the sea cocks can be placed high enough on the bilge to prevent the fouling of the tube. (3) The registering apparatus is placed where it can be readily seen and read, usually in the pilot house, chart room, or on the bridge. If outside, a weather-proof case must be provided, in addition to that furnished with the log. (4) Being able to know at all times the exact speed of the vessel by simply glancing at the speed dial and also having this speed permanently recorded with the time and date on the record chart, the value of this record cannot be overestimated. In some instances the log has paid for itself many times over in preventing damage suits for alleged excessive speeds in dangerous passages. In a number of lines the masters are required to turn these records into the manager, who can see at a glance the whole performance of the ship while under way, and he files them for future reference."

GEORGE WASHINGTON'S example for telling the truth is being well perpetuated by

The Starrett High Speed Indicator

which tells the exact truth about a shaft's revolutions. The working parts of this Indicator are encased, and the dial plate has two rows figures, reading right or left, as the shaft may run.

AN IMPORTANT IMPROVEMENT

applied to all our Indicators is the use of **Rubber Tips** for pointed or hollow centers on the hardened steel pointed spindles.

Send for our FREE CATALOGUE No. 17L, which tells of all the STARRETT TOOLS.

THE L. S. STARRETT CO., ATHOL, MASS.

A Chance Courtship

is a story of an unconventional love match, well told and beautifully illustrated. As a bit of readable fiction the story is well worth writing for. It is contained in a handsomely bound book of 128 pages, a portion of which is devoted to the attractive mountain and lake resorts along the Lackawanna Railroad. It is a book you will like to see. It may be had by sending 10 cents in postage stamps to T. W. Lee, General Passenger Agent, Lackawanna Railroad, New York.

Marine Engineering Thermometers, Gauges

Ask for Our New Catalogue No. 1

EVEN if you do not want to buy, it will pay you to write for our New Catalogue, No. 1.

IT WILL KEEP YOU POSTED.

HOHMANN & MAURER MFG. CO.

ROCHESTER, N. Y., U. S. A.

NEW YORK 85 CHAMBERS STREET | LONDON, ENG. 98 CLERKENWELL RD., E. C. | CHICAGO 119 LAKE STREET

DIXON'S
GRAPHITE
PIPE JOINT
COMPOUND

Very Useful on Shipboard

Not only upon piping of all sorts, but upon bolts, nuts, caps, studs, etc. Threaded joints never rust or stick.

Write for new booklet 75-D, and free sample.

JOSEPH DIXON CRUCIBLE CO., JERSEY CITY N. J.

Thrust bearings and steel balls are described in an illustrated catalogue of fifty pages issued by the American Ball Company, Providence, R. I. In designing bearings the company's aim has been to construct self-contained bearings, made to conform to standard sizes and dimensions, to cover a wide field of work. The catalogue claims that ball bearings have certain advantages over roller bearings. Any one interested in the subject of anti-friction bearings should apply for a copy of this catalogue.

"What We Do" is the title of the latest catalogue issued by the Wellman-Seaver-Morgan Company, Cleveland, O. The interests of this combination are widely extended, covering most fields of industry in which steel is used. Among the subjects of particular interest to the readers of Marine Engineering are the following: "The construction of machine shops, the typical one being that at the South Chicago yard of the American Shipbuilding Company; cranes of all kinds, especially for handling freight, and in connection with ship and boiler works. The illustrations show cranes in the yard of the Fore River Ship and Engine Company as well as in a number of shops and on wharves. The variety of devices for loading and unloading vessels is well worth a careful investigation. There are also illustrated a large variety of hoists and other specialties.

A test of De Leval centrifugal pumps, consisting of standard centrifugal pumps direct connected to De Leval steam turbines, has just been made by Messrs. J .E. Denton and William Kent. The results of these tests are published in bulletin form and copies can be had by applying to the De Leval Steam Turbine Company, Trenton, N. J. The bulletin comprises twenty-four pages and the text shows that the tests were very thorough. In the back part of the bulletin are illustrations of the De Leval turbines connected to electric generators, Sturtevant blowers, etc.

Cold saw cutting-off machines are illustrated and described in Catalogue 39, issued by the Newton Machine Tool Works, Philadelphia, Pa. The catalogue states: "All of our tools have recently been re-designed, and these machines are of the construction which our experience with over 1,200 has demonstrated to be the best. They range from our small bar saw, with a capacity of two inches, up to our large machine for engine cranks and forged stock, having a capacity of 21 inches. The different machines illustrated are adapted to the cutting of round and square stock, I-beams, channel bars, armor plate, nickel steel and gates, or risers on steel castings. The spindles on the different designs are driven either direct or through gearing by phosphor bronze worm steels and hardened steel worms of steep lead; they have automatic feed, and with the exception of the three small sizes of bar saws, have power of quick return to carriage. The feed clutch has an automatic throw-out."

Centrifugal pumps, double-suction pumps, and vertical steam engines, are illustrated and described in a very complete catalogue of 56 pages issued by the Lawrence Machine Company, Lawrence, Mass. Regarding the pumps, the catalogue states that the Lawrence pumps have been in successful operation for twenty years, thus demonstrating the correctness of the principles upon which they are designed and the high class of the material used in their manufacture. The claims are made that these pumps may be erected with ease and celerity, that they work with an easy rotary motion, without valves or eccentrics; that they will discharge a great quantity of water in proportion to the power expended; that they are economical in use, simple in construction, and of great durability; that they discharge a continuous stream of water without air chambers; that their cost, measured by the amount of water discharged, is very low; that they are little effected by sand, mud or other substances; that they will pump hot or cold liquids equally well; and that they require a very light and inexpensive foundation. This company designs engines for use in connection with its pumps, as well as engines suitable for other auxiliary purposes. Anyone interested in the subject of pumps for dry-docks, for dredging purposes, for circulating water in surface condensers, in bilge pumps on steamships in connection with syphon condensers; for pumping out coffer dams, or manufacturing plants of any kind, should not fail to send for a copy of this catalogue.

Walworth Mfg. Co., 130-136 Federal St. BOSTON
N. Y. Office, Park Row Bldg.

Specialty of **BRASS VALVES** and Fittings for Marine Construction

Extra Heavy Valves, Bent Pipe and Fittings for High Pressure Work

SOLE MANUFACTURERS OF
WALWORTH FLANGED—OVER PIPE JOINT
Which does not Weep under heavy pressure

OUR BOOK CONTAINING "TABLES OF DIMENSIONS" OF WALWORTH GATE VALVES, FLANGED FITTINGS, FLANGED OVER PIPE JOINTS, WROUGHT IRON BENDS, ETC., should be in your draughting room.

The Knowles express pump is the subject of Bulletin K-73, issued by the Knowles Steam Pump Works, 114 Liberty street, New York city. This pump is of the reciprocating type and is direct-connected to an electric motor. A 250-gallon pump is said to run at a speed of 300 revolutions per minute.

"Triplex" chain blocks for warehouse use are described and illustrated in a folder issued by the Charles A. Strelinger Company, Detroit, Mich. The folder states that by the use of these blocks it is possible to tier material up to the ceiling, doubling the capacity of floor space. A catalogue and a block for thirty days' trial will be sent upon application to readers of MARINE ENGINEERING.

Cockerill gas engines are illustrated and described in a catalogue issued by the Wellman-Seaver-Morgan Company, Cleveland, O., the American licensees of these engines. The catalogue states that the Cockerill engines are of the four-cycle type. The engine acts as a pump as well as a motor, the gas mixture being drawn in during the first stroke, compressed during the second stroke, exploded in the third, and exhausted in the fourth stroke. These engines are made with one, two, or four cylinders, either single, tandem, or twin-tandem.

The July issue of *The Progress Reporter*, published by the Niles-Bement-Pond Company, manufacturers of machine tools, 136 Liberty street, New York city, states that the company's machines exhibited in Sections 17 and 25, Palace of Machinery, World's Fair, St. Louis, are either of entirely new design or embody radical modifications of older patterns. All of the larger machines are driven by direct-connected motors. The more important machines are illustrated and described in this issue of *The Progress Reporter*, a copy of which will be sent to any reader of MARINE ENGINEERING upon application.

Steam pumps are the subject of a 96-page illustrated catalogue issued by the Warren Steam Pump Company, Warren, Mass. A great variety are described, among which are single-boiler feed or pressure pumps, single light-service pumps, piston pattern, single plunger pumps, hydraulic-pressure pumps, vertical sinking pumps, vertical wrecking pumps, deep-well pumps, single-cylinder power pumps, duplex power pumps, duplex pumps, separate cylinder style with plain valve gear, underwriter fire pumps; and, in fact, steam pumps for almost every service. At the end of the book are useful tables of areas of circles, pressures of water for varying heights, contents of cylinders in cubic feet, friction loss in pounds pressure per square inch, temperature and weight of steam at different pressures, etc.

Cold saw cutting-off machines are illustrated and described in Catalogue No. 25, issued by the Diamond Drill & Machine Company, Birdsboro, Pa., manufacturers of rolling mill and hydraulic machinery, diamond prospecting drills, Jackson belt-lacing machines, automatic saw-sharpening machines, air furnaces and cupola castings, open-hearth steel castings, and heavy or light machinery of all kinds. Regarding the cold saw cutting-off machines, the catalogue states that each type is built in seven sizes, with beds to suit all requirements. The company has secured the sole rights to manufacture and sell the Wagner cold saw cutting-off machines and automatic saw sharpeners in the United States and Canada. Among the advantages claimed for the cutting-off machines are great capacity for speed, minimum wear of saw blades, automatic feed, according to variation in shape or hardness of material to be cut, every tooth of saw brought into action by means of counter-balanced feed, automatic indication of dull saws, no cessation of cutting even in case of saws with broken teeth, automatic throwing out of feed when cut is completed, thus allowing one operator to have charge of several machines, counter shafts not required, rigid and simple construction, head swivels—cuts any angle, saw can be used in horizontal position.

A Boat Painted White

with ***Oxide of Zinc*** will remain white in all seas and all climates; and tints based on ***Oxide of Zinc*** will remain pure and unaltered. There is no other satisfactory white pigment for marine service.

OUR PRACTICAL PAMPHLETS FREE:

"The Paint Question,"
"Paints in Architecture,"
"French Government Decrees,"
"Specifications for Architects,"
"Paint: How, Why and When."

THE NEW JERSEY ZINC CO.
71 BROADWAY
NEW YORK

We do not grind zinc in oil. List of zinc paint manufacturers is furnished on request.

CONDENSER TUBES

last longest if made of

"BENEDICT-NICKEL"

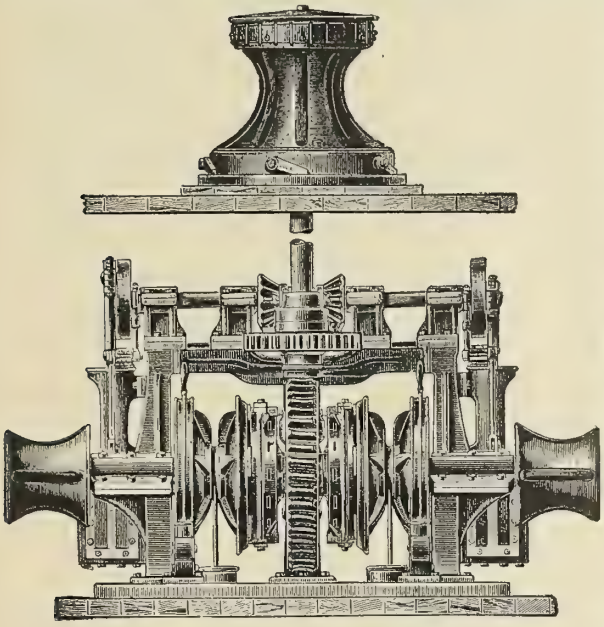
ELECTROLYSIS is positively resisted because "Benedict-Nickel" is an alloy of nickel and copper.

CORROSION is impossible, as the tubing is so perfectly homogeneous.

Our treatise on "Electrolysis of Condenser Tubes" is very valuable and costs you nothing. Send for it.

BENEDICT & BURNHAM MFG. CO.
WATERBURY, CONN.
New York, 253 Broadway Boston, 172 High St.

STEERING GEAR
WINDLASSES, CAPSTANS



AND OTHER SHIP AND YACHT FITTINGS

The Textile-Finishing Machinery Co.

17 EXCHANGE PLACE, PROVIDENCE, R. I.

NEW YORK OFFICE, 39 CORTLANDT STREET

Tangential water wheels is the title of a booklet issued by the Abner Doble Company, San Francisco, Cal. There are many illustrations and the booklet contains much information of interest to users of water wheels.

Drop forgings and machinists' tools are illustrated and described in a 120-page catalogue issued by the Billings & Spencer Company, Hartford, Conn. This is a very complete catalogue and should be in the hands of every machinist. Wrenches of many styles and sizes, combination pliers, wire cutters, drop-forged carbon tongs, ratchet drills, taper sleeves, drop-forged lathe dogs of many varieties, machinists' clamps, reamer holders, thread cutting and diamond point lathe tools, screw-plate surface gauges, caliper gauges, boiler makers' hammers, gun and machine makers' screw drivers, belt fasteners, drop-forged weldless eye bolts, and drop hammers, are among the tools described in this catalogue. The Billings & Spencer Company also makes special drop forgings to order.

"A. B. C." disc fans, direct connected to Westinghouse motors, are illustrated on a mailing card distributed by the American Blower Company, Detroit, Mich.

The use of producer gas in connection with suction gas engines is proving very satisfactory in Germany and other European countries. One of the leading concerns in this country which manufactures producer-gas outfits is R. D. Wood & Co., 400 Chestnut street, Philadelphia, Pa. This company is now distributing a well-printed and illustrated catalogue entitled "Gas for Power and Fuel, One Horse Power, One Hour, One Pound of Coal." The plants described are for industrial uses, but by slight modification can be adapted to marine uses, hence the catalogue is one that will be of much interest to all those of our readers who are concerned in gas engines.

Friction clutches are illustrated and described in a catalogue issued by the Carlyle Johnson Machine Company, 356 Asylum street, Hartford, Conn. The catalogue states that these clutches embody all the principles which make a perfect friction clutch; that they are simple, powerful, neat, and operate easily and quietly; that they have few parts, and these interchangeable; that they are round and smooth, with no protruding parts, thus making accidents impossible; that there are no bolts, nuts, links, etc., to become loose and cause trouble; that one screw adjusts them to any required tension; and that the working parts being entirely covered, are free from dirt.

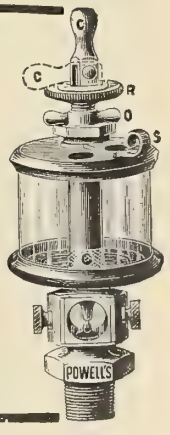
Concrete construction is the title of an illustrated pamphlet issued by the Engineering Company of America, 74 Broadway, New York city. This book is a discussion of the advantages of concrete construction in building sea walls, breakwaters, piers, factories, warehouses, bridges, dust chambers, stand pipes, office buildings, etc., and except for the advertisement on the last page contains no reference to the Engineering Company of America. The pamphlet gives details of the Baltimore fire, and extracts from the reports of engineers showing that "when floor arches and steel coverings were of concrete, they stood the test much better than terra cotta." Any one interested in this subject should send for a free copy of the booklet.

Uses of flake graphite on shipboard is the subject of an illustrated article by Mr. H. E. Raabe, M.E., in the August number of *Graphite*, published by the Joseph Dixon Crucible Company, Jersey City, N. J. The article deals particularly with the lubrication of stern bearings and the bracket bearings of a twin-screw hydraulic dredge. Separation of graphite from exhaust steam is also discussed in this number of *Graphite*. The article states: "Any separator or grease extractor or filter that will remove cylinder oil from exhaust steam will remove every trace of graphite. We have been informed by a marine engineer of great experience that the action of graphite in a surface condenser is to greatly reduce the electrolytic corrosion of the tubes. If graphite gets into a boiler it will be found that it will make the boiler scale much more friable and less tenacious."

POWELL'S PATENT "SIGNAL" OILER

SIGNAL LEVER UP—FEEDING
SIGNAL LEVER DOWN—FEEDING STOPPED

Easy to fill. Simple to regulate. The only Oiler on the market with sight chamber that can be examined and cleaned without interfering with the operation of the cups.



THE WM. POWELL CO.

Everything in the steam line for the boiler and engine room.

Send for Complete Illustrated Catalogue.

CINCINNATI, OHIO, U. S. A.

New York Agent:
H. H. BEALS, 51 Cliff Street

Philadelphia Agent:
C. J. RAINEAR & CO., 518 Arch Street

Measuring tapes, rules, etc., are described in Catalogue 7, issued by the Lufkin Rule Company, Saginaw, Mich. This catalogue is profusely illustrated, and describes at length linen and steel measuring tapes, rules, and other engineers' supplies, embodying a great variety of styles, suitable for almost any use required by engineers and draftsmen. A free copy will be sent upon application.

The condensing apparatus manufactured by the Alberg Condenser Company, 95 Liberty street, New York city, is illustrated and described in a booklet the company is mailing. Among the articles this company makes are jet condensers, surface condensers, barometric condensers, central condensers, self-cooling condensers, Corliss dry vacuum pumps, centrifugal and direct-acting pumps, and cooling towers.

Gas for power and fuel is the title of a catalogue sent out by R. D. Wood & Company, engineers, iron founders, and machinists, Philadelphia, Pa. Triple-expansion condensing pumping engines, hydraulic fixed and portable riveters, hydraulic forging and bending machinery, hydraulic cranes, and other machine tools used by ship, engine, and boiler makers, are also illustrated and described in this catalogue.

Marine life-saving and fire-fighting appliances are illustrated and described in a pamphlet issued by the James Reilly Repair and Supply Company, 229 West street, New York city. Ring buoys, life preservers of various types, rubber hose, fire axes, fire extinguishers, metallic cylinder life rafts, United States regulation metallic life boats, and double-acting brass ship deck pumps, are among the articles described in this pamphlet.

Air ports, dead lights, deck lights, ventilators, coaling scuttles, manhole plates, etc., are described in Catalogue A, issued by the Marine Manufacturing and Supply Company, 157 South street, New York city. This company manufactures and deals in all kinds of vessel fittings, marine and heavy hardware, hoisting apparatus, derrick fixtures, tackle blocks, cordage, chains, anchors, flags and signals, buoys, life preservers, paints, oils, varnishes, brass and iron castings, machine work, blacksmithing, and brass finishing.

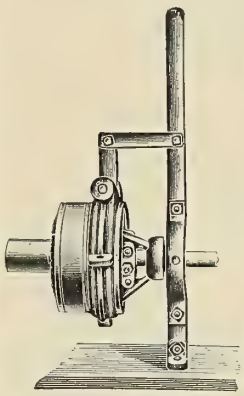
Barton steam generators are thoroughly illustrated and described in the 1904 catalogue issued by the Barton Boiler Company, 4212 State street, Chicago, Ill. This outfit consists of a steam boiler of the flash type, which is thoroughly described. The burner is a special type designed for the use of kerosene. This plant was originally designed for use in automobiles but has now been adapted by the company for small and compact power plants for launches, having been recently approved by the Steamboat Inspection service. Any one interested in this subject of small steam plants for use in launches will find this catalogue very interesting.

Users of marine and field glasses will be interested in a tiny book published by the Warner & Swasey Company, Cleveland, O. The booklet states that the old type of field glass usually magnifies four or five diameters and never more than six diameters, while the Warner & Swasey glasses magnify from six to ten diameters. Moreover, the old style of glass is said never to have a field of view larger than four degrees, while the lowest power of Warner & Swasey glasses has a field view of six and three-quarters degrees. How much this means will be understood after seeing in this book the pictures of a light house, showing the field of vision looking through the old type of glasses and through the Warner & Swasey glasses.

THE IMPROVED

"BALL" REVERSE GEAR

FOR MOTOR BOATS



THE BALL REVERSE GEAR.

MADE ONLY OF

SPUR GEARS

PATENTED,
April 9, 1901.
Nov. 3, 1903.
Jan. 12, 1904

HAS NO EQUAL

Manufactured Only by the

NEW YORK GEAR WORKS

56 Greenpoint Ave., Brooklyn, N. Y.

Send for Catalogue.

Combination Book Offer...

Practical Marine Engineering, - - $5.00
Gas Engines and Their Troubles, - - 1.50
Total, $6.50

PRICE OF THE TWO, $5.75

Sent on receipt of price by

Marine Engineering, 309 Broadway, New York City

Gold dredging machinery and sand pumps are illustrated and described in Catalogue No. 2, issued by the General Construction Company, Marion building, Seattle, Wash.

The Mason Regulator Company, 158 Summer street, Boston, Mass., is mailing a price list of repair parts for all sizes of Mason reducing valves. A copy of this list with be mailed free upon application.

Steering gears, steering wheels, port lights, deck plates, yacht bells, diaphragm pumps, hydraulic pile-sinking outfits, bilge and deck force pumps, manufactured by the Edson Manufacturing Company, 255 Atlantic avenue, Boston, Mass., are brought to the notice of the public by a mailing card which this company is distributing.

Second-hand machine tools, for sale by the Garvin Machine Company, Spring and Varick streets, New York city, are listed in a folder now being distributed by the company. Full description of any machine listed will be sent upon application, together with photographs whenever possible.

The Muller slot-punching device is the subject of a folder issued by Martin Eriksson, Station B, Box 104, Cleveland, O. The folder states that this device produces in a single operation a perfectly smooth-edged, straight, curved, or broken slot; thus doing away with all clipping and hand work. The device may be applied to any standard punching machine already in use.

UNITED STATES METALLIC PACKINGS

RELIABLE—SATISFACTORY—EFFICIENT

FOR PISTON RODS AND VALVE STEMS OF MAIN AND AUXILIARY ENGINES

The United States Metallic Packing Co.

427 North Thirteenth St., PHILADELPHIA. CHICAGO, 509 Great Northern Bldg.

BUSINESS NOTES.

BABCOCK & WILCOX BOILERS IN THE BRITISH NAVY.—It is announced that after four years of investigation the boiler committee appointed by the British admiralty has unanimously declared in favor of water-tube boilers for naval use, and has placed the boilers made by the Babcock & Wilcox Company, New York and London, at the head of the list.

THE LYLE LIFE SAVERS' GUN.—Regarding this gun, the agent, James Reilly Repair and Supply Company, 229 West street, New York city, says: "Hitherto it has been the custom to project the line from the shore to the vessel, and under the conditions which usually exist, this is a matter of great difficulty. The advantages, therefore, of shooting the gun from the ship to the shore, which is the purpose of the Lyle gun, are obvious. This gun is the same as used by the United States life saving stations. It may also be used for saluting."

DECISION REGARDING ELECTRICAL INSTRUMENTS.—On advertising page 13 our readers will find an announcement of a court decision in favor of the Weston Electrical Instrument Company, Waverly Park, Newark, N. J., in a suit brought by that company for an infringement of its patents.

THE STEAM YACHT ARROW, owned by Mr. Charles R. Flint, New York city, has proved to be very speedy. On July 18 there was a race between the *Arrow* and the new Sandy Hook steamer *Asbury Park,* which is the fastest boat in the fleet. The *Asbury Park* left her dock at the foot of Rector street, and the *Arrow* started after her, passing the dock eight minutes later. The *Arrow* soon overhauled and passed her, continuing on to the *Asbury Park's* dock at the Highlands, arriving there twenty minutes ahead of the *Asbury Park,* thus beating that boat twenty-eight minutes, and making the run of 20 1-2 miles in fifty minutes. The original designs of the *Arrow* were made by Mr. C. D. Mosher, 1 Broadway, New York city.

RESULTS PROVE IT!

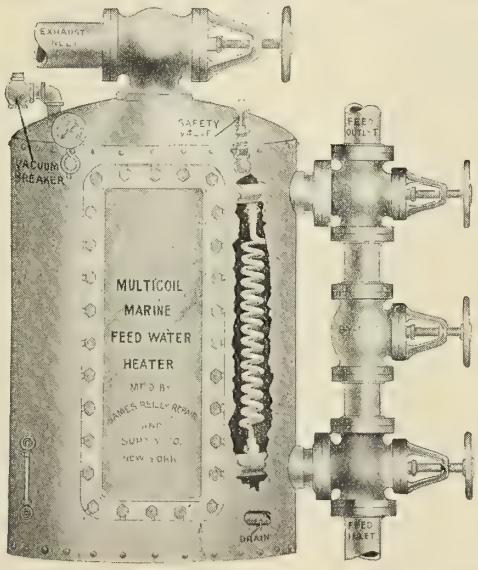
Let Us Prove It to You—
As We Have to Others Who Pay for the Coal.

Our Multicoil Feed-Water Heater
IS A SUCCESS

IF YOU CANNOT KEEP UP STEAM
IF YOU CANNOT MAKE TIME
IF YOU CANNOT DEVELOP H. P.
} *OUR HEATER WILL HELP YOU*

A FEW VESSELS THAT HAVE THEM:

Monroe,
Jamestown,
Hampton Roads,
Horatio Hall,
North Star,
Middletown,
Manhattan,
Kershaw,
Powhattan,
Juniata,
Essex,
Chatham,
D. H. Miller,
Admirals Sampson and Schley,
Lighter Edgewater,
The Four New Lackawanna R. R. Ferryboats.



Asbury Park,
Sandy Hook,
Henry Wilson,
Sprigg Carroll,
Calvin Austin,
Patrol,
General Meigs,
Yachts: Celt, Carmina, Calumet, Waturus and Pioneer.
Dredges: Atlantic, Pacific, Perry, Caucus, St. John.
Government Dredges: 43, 44, 45, 46, 47, 51.

ASK US FOR A CATALOGUE.

THE JAMES REILLY REPAIR & SUPPLY CO.

229-233 WEST STREET, - - - NEW YORK CITY

NAVY DEPARTMENT ORDERS WRECKING PUMPS.—The Lawrence Machine Company, Lawrence, Mass., has received a contract from the United States Navy Department for three centrifugal wrecking pumps, ranging in capacity from 20,000 to 40,000 gallons per minute; each pump to be direct-connected to Lawrence engines, and each arranged so that electric motors may be substituted in place of the engines.

WILL ERECT A ROLLING MILL.—The Victor Metals Company, 29 Broadway, New York city, which manufactures Victor non-corrosive silver metal, Victor bronze, manganese bronze, Azalea anti-friction metal, phosphor and aluminum bronze, and bell and electric metals, has found it necessary to build a rolling mill, on account of the great increase in the demand for its metals. The company asks for catalogues of rolling mill machinery and furnaces.

CHAPMAN VALVES AT THE ST. LOUIS EXPOSITION.—The Chapman Valve Manufacturing Company, Indian Orchard, Mass., has a working exhibition at the fair, as the power plant in the Machinery Building and the boiler house adjacent are equipped exclusively with this company's valves, including several 24-inch electrically-operated and automatically-controlled valves in the condenser apparatus piping. The Chapman electrically-operated valves are also exhibited in connection with the General Electric Company's display, Block 28, Palace of Electricity.

BAGS OF GOLD GIVEN AWAY.—James L. Robertson & Sons, 204 Fulton street, New York city, manufacturers of Eureka packing, Robertson-Thompson indicators, and many other steam specialties, in their desire to keep themselves and their goods before the public, started in February last a guessing scheme, offering three prizes, $200, $75, and $25 in gold to the engineers who guessed nearest to the number of admissions to the St. Louis exposition on July 4. Naturally there were a great number of contestants. On receipt of the official figures from the secretary of the exposition, 179,258, a committee composed of the publishers or managers of the five engineering papers examined the records and awarded the prizes as follows: Joseph Carson, engineer, Pennsylvania Railroad Company, Newark, N. J., who guessed 178,986, first prize; Mason Chilcote, engineer, American Sewer Pipe Company, Akron, O., who guessed 179,738, second prize; Albert Smith, engineer, American Multiple Fabric Company, Providence, R. I., who guessed 180,210, third prize. The gold has been forwarded to these engineers.

PHOENIX METAL FOR BEARINGS.—Mr. Dan. E. Lynn, general marine sales agent, National Lead Company, Cleveland, O., has received many letters of commendation regarding the Phœnix metal, which the National Lead Company manufactures. The chief engineer of the Lehigh Transportation Company writes: "We used the Phœnix metal on two of our ships last season and it has given perfect satisfaction. We are now putting it in the crank-pin journals of two of our largest ships, the *Mauch Chunk* and *Wilkesbarre*. The engineers report that the wear on the journals fitted with the Phœnix metal is much less than that on the brass formerly used." Mr. W. G. Jenks, treasurer of the Jenks Shipbuilding Company, Port Huron, Mich., writes: "We have put Phœnix metal into the main journals, thrust bearings, and crank-pin boxes of the steamers *Capt. Thomas Wilson, Kennebec, Charles S. Neff, Henry Steinbrenner,* and *Kanawha*. We are also putting it into the engines of the United States lighthouse tender *Hyacinthe* and the steamer *John B. Cowle*. The steamers *Wilson, Steinbrenner,* and *Cowle* are 440 feet long and have a capacity of about 6,300 gross tons. The steamer *Wilson,* the past season, has beaten every steamer she has come across. We have yet to hear the first complaint of this metal, and, until we do, we shall continue to use it in all of our large engines, and we can cheerfully recommend it to anybody who wants a first-class metal."

MARINE ENGINEERING
EMPLOYMENT BUREAU.

Full information regarding the purposes of this bureau, together with instructions regarding registration, etc., furnished upon application to MARINE ENGINEERING Employment Bureau, 309 Broadway, New York City.

All correspondence, concerning either vacancies or situations wanted, is strictly confidential.

POSITIONS SEEKING MEN.

BOILER-SHOP FOREMAN. Must be familiar with various types of marine boilers and capable of handling repair work. Knowledge of shipbuilding and repairs will be of great advantage. File 10.

CHIPPERS AND DRILLERS can find a position in a large shipyard if experienced. File 30.

FOREMAN FOR BOAT BUILDING SHOP who has had experience in constructing new hulls, who can attend to repair work and is familiar with gas engines. File 15.

FORGINGS SALESMAN wanted who is acquainted with the manufacture and use of high-grade forgings, has had experience as a salesman and who has acquaintance in this special direction File 25.

SALESMAN FOR STEEL CASTINGS, both large and small, is wanted who understands steel casting business and who has acquaintance among purchasers. File 26.

SKILLED BOAT BUILDER who has had experience in handling men, and who can attend to the hull work in large launch works. File 14.

STEAMFITTER AND COPPERSMITH acquainted with plumbing, and able to make estimates; also to take charge in a general way of plumbers, coppersmiths and steamfitters. File No. 36.

SUPERINTENDENT, DESIGNER AND FOREMAN wanted in a shop devoted to the building of small pleasure boats. File No. 35.

ACTIVE AND PRACTICAL SUPERINTENDENT fo yacht, launch and boat-building works wanted. One who can take a financial interest in the business preferred. Good opportunity to become associated with a growing business in which all interested are working. File No. 38.

MEN SEEKING POSITIONS.

We have applications registered for positions as follows, and the references of each applicant have been carefully investigated:

ASSISTANT SUPERINTENDENT, ENGINEER OR ASSISTANT ENGINEER IN ENGINEERING WORKS. Age 28; single; of English birth; has British and American licenses and has had several years' sea experience. Application No. 23.

BOILER-SHOP FOREMAN. Age 35; single; many years' experience in Navy Yard and leading shipyards. Application No. 59.

CHIEF OR ASSISTANT DRAFTSMAN—ENGINE. Age 32; married; has had sea experience and several years' experence in government and private shipyards. Application No. 25.

CONSULTING ENGINEER AND NAVAL ARCHITECT. Married; born in Germany; had many years' experience in designing, drafting and surveying. Application No. 33.

DESIGNER AND DRAFTSMAN. Has had many years' experience in launch and river boat work. Designed some of the fastest river boats in the country. Application No. 61.

DRAFTSMAN, ENGINE AND BOILER. Age 30; unmarried; has Danish marine license; technical school graduate. Application No. 57.

DRAFTSMAN—HULL. Age 20; single; experienced in architectural work, but prefers marine drafting. Application No. 51.

DRAFTSMAN—HULL. Age 25; married; 9 years' experience in leading yards in drafting, testing materials, surveying, etc. Application No. 54.

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TRADE PUBLICATIONS.

The Richmond Electric Company, Richmond, Va., is distributing Bulletin No. 2, describing this company's moderate-speed motors.

Graphite as a lubricant is scientifically and practically considered in a booklet which is being distributed by the Joseph Dixon Crucible Company, Jersey City, N. J. This is the eighth edition of this booklet, which explains the manifold uses of graphite in connection with steam and power plants.

Marine thermometers and other instruments.—A complete catalogue, describing the marine thermometers, gauges, and other high-grade instruments, manufactured by the Hohmann & Maurer Manufacturing Company, Rochester, N. Y., is now in press, and copies will be ready for distribution in a short time. Any of the readers of MARINE ENGINEERING who are at all interested in the subject, and every up-to-date engineer should be, ought to be sure to have a copy forwarded as soon as it is ready for distribution.

Users of gas engines for marine purposes, will find much interest in a catalogue issued by the Dayton Electrical Manufacturing Company, Dayton, Ohio, entitled "Apple Ignition Apparatus." The apparatus described is not merely for purposes of furnishing sparking outfits, but also for compact lighting plants. These include a dynamo operated direct from the engine and used in connection with small lamps, compact switchboard, and storage batteries. Every launch builder and owner may have a copy of this catalogue sent free by mentioning MARINE ENGINEERING.

The steam pumps and other specialties manufactured by the Dean Bros. Steam Pump Works, Indianapolis, Ind., are finely illustrated and concisely described in Pony Catalogue No. 44. A paragraph at the top of the first page states that these works have the largest and most complete line of steam pump patterns in the country, and that this catalogue contains descriptions of but a few. Any reader of MARINE ENGINEERING who is at all interested in the subject of pumps and other marine auxiliaries, and who wishes any special information, should apply direct to the company for more detail than that given in this catalogue, if it is desired.

A free copy of an excellently printed and very complete catalogue of 136 pages, will be sent by Annin & Company, 99 Fulton street, New York, N. Y., giving a great deal of information regarding the flags, banners, and other specialties of this firm. The catalogue contains large pictures in color of various styles and sizes of flags, with pennants, signals, etc., of all kinds, flags of all the nations of the world printed in colors, and many pages are devoted to different styles of burgees, club flags, special yacht flags, etc. There are also several pages of patriotic novelties, together with a variety of other specialties connected directly or indirectly with patriotic demonstrations, and flags, colors, etc., used in connection with vessels of all kinds.

The Mosher water-tube boiler, both the marine type and the stationary, will be found illustrated and described quite exhaustively in folders which are being distributed by the Mosher Water Tube Boiler Company, 1 Broadway, New York city. There are four folders as follows: first, "Official Test of the Mosher Boiler on the Monitor *Florida*"; this contains a fine picture of the monitor, and gives interesting comparison of tests made of different types of boilers on war vessels. Second, "The Type B Boiler," which is illustrated both externally and with sectional views, and contains details regarding dimensions, weights, horse power, etc. A third circular, contains thirteen pictures of torpedo boats and destroyers, as well as of steam yachts, which have been equipped with Mosher boilers. Among these pictures are fine ones of the *Arrow*, "the fastest vessel in the world." The fourth folder describes the stationary boiler.

"Graphite Afloat and Afield" is one of the latest publications of the Joseph Dixon Crucible Company, Jersey City, N. J. In this booklet is a concise description of many of the graphite preparations manufactured by the Dixon Company, especially for use on yachts, launches, row boats, fishing rods, rifles, etc.

Insulating materials.—The H. W. Johns-Manville Company, 100 William street, New York city, has issued a neat and complete catalogue covering "Mica" plate, cloth, segments, rings, and mica in all its various forms required by the electrical industry; also "Vulcabeston," "Transite," "Electrobestos," and "Niagrite." A copy can be had upon application.

Well-illustrated circulars are being distributed by the Baum Separator & Machine Company, 39 Cortlandt street, New York city, describing the Baum oil separator, which is also fully illustrated by half-tone engravings and line drawings of sectional views. There are also tables of dimensions, sizes, etc.

Engines and boilers for stationary plants, made by James Leffel & Company, Springfield, Ohio, are illustrated and described in a catalogue distributed by the company. The catalogue enters into details as to the making of Leffel engines and boilers, and shows on what facts their alleged superiority is based. The book will be mailed free to prospective buyers of stationary engines and boilers.

"Metal-Working Machine Tools" is the title of the latest catalogue issued by the Garvin Machine Company, Spring and Varick streets, New York city. It is only 4 by 6 inches in size and is printed on very thin paper, so that there are 274 pages of text, yet the catalogue is scarcely half an inch in thickness. Every reader of MARINE ENGINEERING, by mentioning this magazine, can have a copy sent free upon application.

"Speaking of Pumps" is the title of a folder issued by the Barr Pump Company, Lehigh avenue and 18th street, Philadelphia, Pa. The Barr pumps are stated to be very thorough in construction. The plungers travel through bronze bushings bored with annular grooves for water packing. The water valves are located below and above the plungers, giving the water a straight course up and down through the two sets of valves. The valve areas are unusually large and water passages are correspondingly liberal in size.

Portable drilling machinery is the subject matter of the latest catalogue issued by the Thomas H. Dallett Company, York street and Sedgley avenue, Philadelphia, Pa. It contains 44 pages and is devoted entirely to the different types of portable drills and boiler-shell drills which this company manufactures. There are probably thirty large-sized illustrations showing different types of drills and applications of them, so that altogether the catalogue is one which must of necessity be of practical value to any one who has to do with drilling for deck use of hand or other power.

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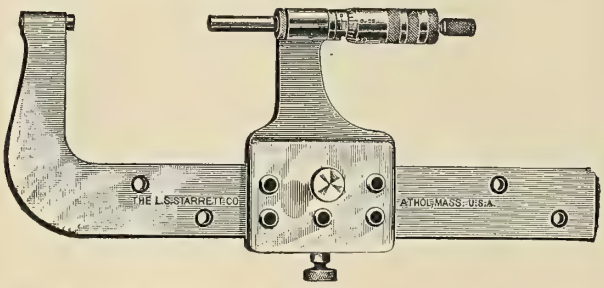
will measure round work to 4½ inches and flat work to 6 inches. It weighs 21 ounces and is rigid and accurate.



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THIS SPACE is too limited to give any idea of our splendid line of

Marine Engineering Thermometers and Gauges

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The air compressors, both stationary and portable, manufactured by the National Electric Company, Milwaukee, Wis., are described in Bulletin No. 350.

The subject of lubrication is interestingly and thoroughly handled in a 32-page booklet, describing the Uneo asbestos grease manufactured by the Lubricating Company, General, corner Chestnut and Broad streets, Philadelphia, Pa. Among the many testimonials published are several from steamship lines, especially from engineers on several ships of the Earn line.

The Brooks centrifugal pump is fully described in a catalogue distributed by William H. Cook & Company, 752 Monadnock Block, Chicago, Ill. In addition to a full description of the pump, and illustrations showing its peculiar design, there are drawings giving sectional views and details of the construction of the pump, so as to explain fully why the pump is claimed to be so efficient.

Round-type motors, direct current, are described in Bulletin No. 219, which is now being distributed by the Sprague Electric Company, 527 West 34th street, New York city. It comprises 16 handsomely-printed pages fully illustrated. In addition to the description of the motor in detail there are a dozen or more pictures showing applications of the motors to presses, ventilators, lathes, and other types of machinery.

The latest biographical sketch issued by Wyman & Gordon, Worcester, Mass., is entitled "A Short Story of Kristofer Polhem."

Yachtsmen and others interested in the subject of sails, awnings, flags, tents, etc., will want to send for a pocket-size catalogue issued by the J. C. Goss Company, 10 Atwater street, East, Detroit, Mich. It contains 76 pages.

The Keuffel & Esser Company, 127 Fulton street, New York city, is distributing a circular of interest to draftsmen, describing the Keuffel & Esser automatic print hanger.

The Branden rubber pump valve is briefly illustrated and described in a four-page folder which is being distributed by the Crosby Steam Gauge and Valve Company, Boston, Mass.

What will be done with exhaust steam, a question for engineer and owner, is discussed, and, it is believed, answered, in a 12-page booklet, copies of which can be had upon application to Warren, Webster & Company, Camden, N. J.

Northern motors, for operating blowers and fans, are the subject of an illustrated folder issued by the Northern Electrical Manufacturing Company, Madison, Wis. The folder states that electrically-driven blowers and fans can be operated where most convenient, regardless of distance from the prime mover; can be operated for an hour or a day economically, and when not running cause no drain on the power system by transmission losses. Electrically-driven blowers and fans can be started and stopped from any distance, and require only occasional inspection and oiling. The folder states also, that Northern motors are operating blowing and ventilating devices in a great number of American industries, where they have given uniform satisfaction.

Steam-steering engines, tiller-steering gears, electric-steering gears, telemotors, hoisting engines, evaporators, distillers, etc., are illustrated and described in a very complete catalogue of 116 pages issued by Williamson Brothers Company, Philadelphia, Pa. The catalogue states that many new devices and machines have been adopted in the company's business, and that the Williamson engines have been extensively used all over the world for many years. The company's hoisting and steering engines are especially well known, and the demand for them has been so great, so it is said, that the firm has been obliged to erect several large new buildings. In the back of the catalogue is much useful information, such as rules governing the inspection of boilers, rules for the care and management of boilers, rules to find the horse power of an engine, the weights of various substances, tensile strength, the capacity of cisterns in gallons, tables of pitch, breaking, proof and working strains. This catalogue, which is one that every engineer, steamship builder, or owner should send for, may be had by readers of Marine Engineering for the asking.

IN THE BUSINESS CENTER.

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THE BOURSE, Phila.

BUSINESS NOTES.

The Philip Carey Manufacturing Company, Lockland, Ohio, manufacturer of asbestos and magnesia pipe and boiler coverings, has an exhibition at the World's Fair, St. Louis, where magnesia and asbestos is shown in all forms, from the crude product to the manufactured article.

New agents appointed.—The France Packing Company, Tacony, Philadelphia, Pa., has appointed as agents, J. G. Iler, Greenville, S. C.; Garbott & Schneider, Minneapolis, Minn.; Rockwell & Fowler, Nashville, Tenn.; A. D. Lasher, Utica, N. Y.; Philip Meyer, Fostoria, Ohio; and R. Gardner, Westerly, R. I.

The Auburn Ball Bearing Company has removed from Auburn to 18 Commercial street, Rochester, N. Y. This company makes ball thrust bearings, ball thrust washers, ball aligning step and pedestal bearings, ball thrust propeller bearings, compound ball thrust and journal bearings, ball journal bearings, ball bearing hubs, power transmission specialties, steel balls, crucible steel disks, and ball bearings suitable for engineering purposes.

Sirocco ventilating fans.—In a paper read before the Manchester Geological and Mining Society upon "The Mechanical Equipment of Collieries," Mr. George H. Winstanley stated: "The Sirocco fan has not hitherto figured prominently as a colliery ventilator, the explanation being that its makers were fully occupied in meeting the demands made by the Admiralty and others who had recognized its immense advantage. The most interesting feature about this fan is that it 'knocks on the head' many of the generally-accepted theories with regard to centrifugal fans. For instance, it has been held that the velocity with which the air leaves the tip of the blades is, theoretically, the same as the circumferential velocity of the fan itself, and in actual practice somewhat less. Actual measurement in the case of the Sirocco fan proves beyond the possibility of doubt that the air leaves the periphery with a velocity almost twice as great as the velocity of the fan itself. This means that a small fan of this type will deal with a much greater volume of air than a larger fan of any other make, whilst the useful effect is somewhat higher. In the Sirocco fan, remarkable as it may appear, the actual water gauge is greatly in excess of the so-called theoretical or calculated water gauge, and to produce a given water gauge this fan has, I believe, a lower circumferential velocity than any other type of fan in existence. The distinctive features of the Sirocco fan are these: it has an absolutely clear inlet of practically the same diameter as the fan itself. (Other fans have the inlet much smaller in diameter than that of the revolving portion). The blades are very short radially, being only about 1-16 of the fan diameter. The width of the blades, however, is greater than usual, about 3-5 of the diameter. There are a larger number of blades than are usually found in centrifugal fans, 64 being the number adopted in the Sirocco. The blades take more the form of scoops, with a forward curvature, and in working there is an entire absence of eddy current. The casting is of the usual form, spiral, with an expanding chimney. Altogether, this fan attains such astonishing results as to merit the most careful attention of all those who are interested in fan construction and mechanical ventilation. As an example of what the Sirocco fan can do in actual operation, and in comparison with other mechanical ventilators for colliery purposes, a fan of well-known make at a Lancashire colliery is producing 233,000 cubic feet per minute. This fan is 24 feet in diameter, and the circumferential velocity 7,425 feet per minute. A Sirocco fan has recently been installed in a colliery in the north of England; it is 75 inches in diameter, and is producing 226,000 cubic feet per minute, circumferential velocity 5,770 feet per minute." Sirocco fans are manufactured by the Sirocco Engineering Company, Belfast, Ireland, and 22 Thames street, New York.

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CORROSION is impossible, as the tubing is so perfectly homogeneous.

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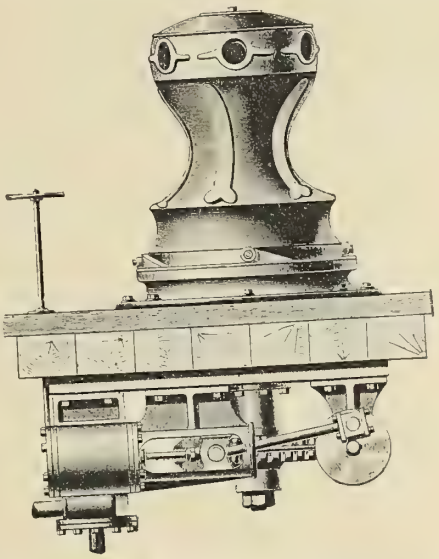
With extra heavy warping barrel; one of the many **Capstans, Windlasses, Steering Engines,** and **Other Yacht and Ship Fittings** which we manufacture.



For Particulars Address

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17 EXCHANGE PLACE, PROVIDENCE, R. I.

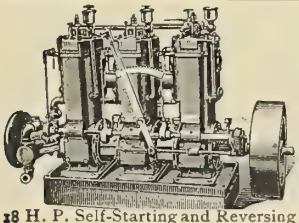
NEW YORK OFFICE, 39 CORTLANDT STREET

Steel castings.—The Delaware River Steel Casting Company, manufacturer of open-hearth steel castings, office and works, Chester, Pa., is distributing a letter which states: "We take this opportunity of informing our friends and the users of acid open-hearth steel castings in general, that we are now prepared to receive and execute orders for steel castings promptly and in accordance with specifications, where same are required. Our main foundry is 127 feet wide by 500 feet long, and contains 64,000 square feet of working surface. It is equipped with one 30-ton and two 20-ton electrical cranes with auxiliary hoists, also smaller electric cranes, and all modern machinery and tools necessary to get out our product with dispatch. Each department of our plant has at its head one thoroughly experienced in his line of business, therefore insuring those who may favor us with their order castings they can depend on being first quality and of the highest order of foundry finish."

Railway dry-docks and marine railways.—The H. I. Crandall & Son Company, East Boston, Mass., has secured the contract for a railway dry-dock of 4,500 tons' capacity for the Southern Pacific Company, San Francisco, Cal.; for a steel marine railway for the Tabasco-Chiapas Trading and Transportation Company, Frontera, Tabasco, Mexico. The Crandall Company is also supplying a Crandall patent release bilge block on the Piraeus, Greece, railway dry-dock, and is building a large dry-dock for the Victoria Machinery Depot Company, Victoria, B. C.

The American Bureau of Shipping, 66 Beaver street, New York city, in the *Record of American and Foreign Shipping*, reports the following vessels classed and rated: American screw *Acapulco*; American screw *General Joseph E. Johnson*; American screw *George W. Clyde*; American screw *City of Benton Harbor*; American screw *Indianapolis*; American screw *Corona*; American screw *Advance*; American screw *Manchuria*; American barkentine *Auburndale*; American barkentine *Glad Tidings*; American bark *Adolph Obrig*; American schooner *William E. Bowen, Jr.*; American screw *Merrimack*; American three-masted schooners *Margaret M. Ford, D. Gifford*; American schooner *Jacob S. Winslow*; British three-masted schooner *Rothesay*; British three-masted schooner *Phœnix*; British three-masted schooner *Ivanhoe*; British three-masted schooner *Helen E. Kenny*; British schooners *Eoniform, Vinita*; British bark *Robert S. Bosnard*; Swedish bark *Tordenskjold*; and Swedish three-masted schooner *Dristig*.

Twentieth century gasoline motors.—The Racine Boat Manufacturing Company, Muskegon, Mich., reports several new features in its 1904 model of gasoline engines. Among them are a float feed carbureter, which the company claims entirely eliminates the liability of flooding, jump-spark ignition, rotary water pump, self-oilers, and under-water exhaust. It is stated that this method of exhaust entirely does away with the smell of gasoline, and with the usual noise of an exhaust, without producing back pressure. The overflow water is carried into the exhaust pipe, which cools it before entering the exhaust pot or muffler. The force is reduced here before entering the water through the bottom of the boat. The outlet is so arranged as to form a vacuum when the boat is running, and in this way it is said that the feeding of the engine of the exploded gases is made easier, rather than being hindered. The lever control is the same as is used on all high-grade automobiles, but also includes the shifting of the propeller blades, in addition to the control of the spark and gases. This device, the company states, gives an even speed whether working against load or light—the motor producing the same number of revolutions without the use of complicated machinery, and the speed of the boat is controlled entirely by changing the pitch of the wheel. The Racine Boat Manufacturing Company also builds steel and wooden boats of all sizes and styles, from a small row boat to a 300-foot steel steam yacht.



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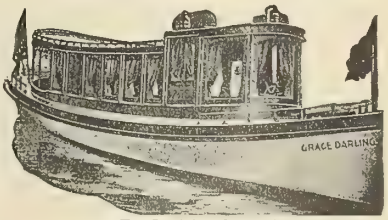

43-Ft. Cruising Launch.

DELAWARE RIVER STEEL CASTING COMPANY

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Manufacturers of OPEN HEARTH STEEL CASTINGS

From 10 to 50,000 Pounds Weight.

WILL BUILD FIVE FERRYBOATS.—The Maryland Steel Company, Sparrow's Point, Maryland, has secured the contract to build five steel double-end screw ferry boats to be built by the city of New York for the Staten Island ferry.

FREDERICK S. NOCK, naval architect and builder, East Greenwich, R. I., reports that he is building a boat for the Buffalo Gasoline Motor Company, Buffalo, N. Y., 45 fet over all, to be equipped with a Buffalo motor; the boat to be used for demonstration purposes. Mr. Nock says the *Turtle*, a hunting cabin launch designed and built by him for Mr. F. W. Albree, Kingston, Ontario, recently left his yard and made a trip to Canada via Lake Champlain. Considering the time consumed traveling through the canals she made a fast trip. Mr. Nock recently launched the yawl *Procyon*, owned by Mr. C. A. Goodwin, Hartford, Conn. He has also just finished a 28-foot speed launch for Mr. L. O. Meacham, which will be kept at West Brook, Conn.

ILLUMINATED DIAL GAUGES.—The Standard Gauge Manufacturing Company, Syracuse, N. Y., with branch offices at 141 Broadway, New York city, and 58 West Washington street, Chicago, Ill., reports that the Standard Illuminated Dial Gauge is meeting with general favor with many of the leading shipbuilding companies and ships' engineers. This gauge is particular well adapted for locations where it is necesasry to place the gauge at an elevation, or in rooms where the light is not sufficient to show the pointer distinctly on ordinary gauges. These gauges are made with other single or double Bourdon tubes, also with single Bourdon tube with auxiliary spring. Circulars and full information regarding the gauges can be had by corresponding.

PARSONS' WHITE BRASS.—The William Cramp & Sons Ship and Engine Building Company, Philadelphia, Pa., reports that the Parsons white brass, which it manufactures for piston-valve rings, crank pins, stern bushing, etc., is filling a want among engineers, shipbuilders, and owners. Following are extracts from testimonials the company has received: (From the Clyde Steamship Company, New York): "We have had many kinds of meal presented to us, and have tried many, but have never found any equal to the Parsons white brass. We have engines making a piston speed of 800 feet per minute fitted with Parsons' white metal in the main bearings, crank pins, and other journals, and in constant use for fifteen years and never removed." (From the Oceanic Steamship Company, New York): "The chief engineer of the *Mariposa* reports that a year ago last April, at Sydney, the entire crank shaft was raised up 14 inches to examine and line up the boxes, and the white metal was found to be in good condition, not having worn down more than one-sixteenth of an inch in nine years. All of the journals working on No. 32 impression A. W. G. are in fine order." (From the Baltimore and Philadelphia Steamboat Company, Philadelphia): "Your letter of the 11th received and contents noted. I have Parsons' white brass installed on the following ships and steamboats: *Manahatta, Chesapeake, Bluefields, City of Philadelphia, Ericsson, A Groves, Jr.* Originally these vessels were supplied with other metals which caused considerable trouble. Since installing Parsons' white brass I have no more complaints from our engineers. This metal is now in use three years and I recommend its further use. Signed, George F. Drury, Supt. Engineer."

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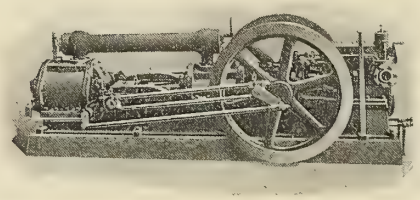
THE INDUSTRIAL RAILWAYS, hoisting engines, conveyors, and other machinery manufactured by the C. W. Hunt Company, West New Brighton, Staten Island, N. Y., are on exhibition at the World's Fair, St. Louis, in the Court of the Palace of Electricity.

MORE SPACIOUS STORES.—Owing to the vast increase in its business, the New York Belting and Packing Company, Ltd., has removed to much larger and more spacious stores, No. 91-93 Chambers street, New York city, and extending through, making entrances also at 73-75 Reade street. This location is only a few doors west of Broadway. The company invites all of its friends and others who are interested in high-grade mechanical rubber goods to call. In connection with the show rooms there has been fitted up a very complete room provided with all the necessary facilities for correspondence, telephone, etc. This new store is believed to be the finest rubber store in the country.



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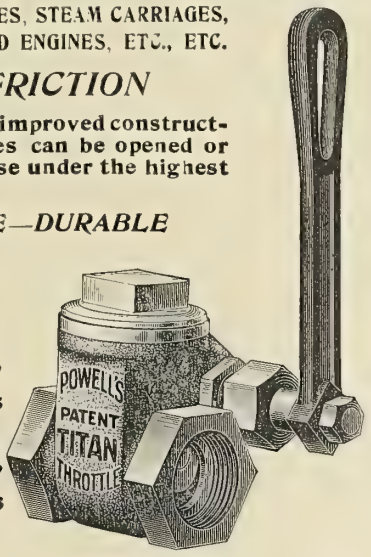

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An Appendix contains chapters VII. and VIII.

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The Rand Drill Company, 128 Broadway, New York city, has secured the contract for furnishing two compressors to be used in the Central Air Power plant near Sault Ste. Marie, Mich. These compressors will supply air to operate 25 "Little Giant" rock drills, 4 three-ton cable ways, and 4 water pumps. Their combined capacity is 6,600 cubic feet of free air per minute. The work in hand is the construction and dredging of a two-mile channel in the Soo river, of sufficient size for the passage of large vessels.

Lunkenheimer exhibit at St. Louis.—In Machinery Hall building, location 5 G, Block 26, is the unique exhibit of the Lunkenheimer Company, Cincinnati, Ohio. It is easily identified by a large model of the familiar "valve in hand," which occupies a prominent corner of the exhibit. Pyramids of globe, angle, cross, lever, and gate valves, of various designs and sizes, both brass and iron, are artistically arranged about the exhibit, and are agreeably off-set by a black plush curtain at the side and rear. The glass cases arranged in front of the exhibit contain a smaller class of Lunkenheimer goods, such as lubricators, oil and grease cups, cocks, etc., of all sizes. Neat designs of racks containing various sizes of whistles, injectors, pop valves, and a variety of other specialties, lend to make up an exhibit worthy of notice. A new design of water gauge, and oil pump for cylinder lubrication, are features in themselves. Dispersed about the exhibit are pipe fittings of every description, together with whistles, safety and check valves, and numerous other appliances. The large variety of steam goods exhibited by the Lunkenheimer Company, necessitates more than a casual glance to thoroughly appreciate the exhibit in all its details.

Standard Roller Bearing Company.—The capital stock of the Standard Roller Bearing Company, Philadelphia, Pa., has been increased from $1,000,000 to $2,000,000. There will be immediately erected a 250-foot addition to the machine shop and factory, as well as an office building two stories in height. This addition will be devoted exclusively to the manufacture of roller bearings, etc., while an addition, 50 feet by 125 feet, three stories in height, will be made to the ball plant, and be in full operation within sixty days. About $250,000 will be expended in the construction of the two buildings and in equipping them with machinery. It is expected that all of the building operations will have been finished by the first of October. Two years ago the Standard Roller Bearing Company purchased about three acres of ground about fifteen minutes' ride from the center of Philadelphia. Upon this property was erected a modern up-to-date machine shop, with power house, forging, and hardening departments in separate buildings. Possession was taken of this property January 1, 1903, since which time the company has built and installed its own brass and iron foundries, and at the present time does not purchase anything whatever in the open market except the raw iron, copper, etc., for its foundries, and steel from which to make bearings.

Back Numbers Wanted

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for either

JANUARY,
FEBRUARY,
MARCH,
APRIL,

1904

MARINE ENGINEERING, 309 Broadway, New York

Thermometers in the Navy.—The Bureau of Steam Engineering of the Navy Department, Washington, D. C., has directed that in all cases where thermometers are not already ordered and delivered, that approved mercurial thermometers be fitted instead of dial thermometers, on all vessels building. This rule is not intended to apply to special high-grade pyrometers, when required for specific purposes.

Blue printing frames.—The Keuffel & Esser Company, 127 Fulton street, New York city, is distributing folders illustrating and describing both the horizontal and the vertical electrical printing frames which this company recently put on the market. Frames of this nature have proved of such value in drafting rooms that any of our readers who have to do with drafting will probably want to send for a copy of these circulars so as to secure further information.

"Mobilene" sheet packing.—The H. W. Johns-Manville Company, 100 William street, New York city, recently received a letter from Mr. Alfred Franklin, owner of the launch *Polaris,* as follows: "I have used your 'Mobilene' sheet packing this whole season on the cylinder head of a six-horse-power gasoline engine in my launch, the *Polaris,* and have found it to be the best and most satisfactory cylinder-head packing on the market. Previously I always had trouble with other makes of cylinder packing, but since I applied 'Mobilene' I have not once been bothered." Any reader of Marine Engineering interested in the subject of packing for gasoline engines should send to the H. W. Johns-Manville Company for a copy of the pamphlet entitled "How to Pack a Gas Engine."

Lining for refrigeration.—A new lining ("Arctic" brand of Keystone Hair Insulator), especially for refrigerator insulation, has been placed on the market. Its distinctive characteristic is, that while it possesses the insulating properties of hair felt, it combines the papers used in connection therewith, so that instead of involving three operations, the "Arctic" can be applied in one. It consists of regular felting hair fastened to and enclosed by two layers of waterproof paper. "Arctic" is furnished according to specifications, to fit nailing strips. It is made from 3-8 to 3-4 inch thick, according to the quantity of hair employed. The H. W. Johns-Manville Company, the manufacturer, 100 William street, New York, is prepared to figure upon specifications and furnish samples, data of tests, etc., promptly upon request.

Westinghouse Exhibits.—The several Westinghouse companies make extensive exhibits at the St. Louis exposition. Most notable of them all is the main service plant, which consists of four big electric generating units, each of 2,000 Kw. capacity. This exhibit is located in the central aisle of Machinery Hall. These generators are three-phase alternating current, operating at a speed of 83 1-2 revolutions per minute, and furnished by the Westinghouse Electric and Manufacturing Company, delivering current at 6,600 volts. The engines are Westinghouse-Corliss, vertical cross compounds, furnished by the Westinghouse Machine Company. The boiler plant was supplied by the Westinghouse Machine Company, and consists of Babcock & Wilcox boilers. The various Westinghouse companies are represented in all parts of the exposition grounds, and in order to make it possible for the visitor to select those special exhibits which he most wishes to see, a guide is published which can be had at any of the Westinghouse exhibits, or by communicating direct with the publishing department of the Westinghouse companies, Pittsburg, Pa. Among the many exhibits of these companies, of interest to our readers, in addition to those already mentioned, are the Westinghouse Air Brake Company, the Perkins Electric Switch Manufacturing Company, the Bryant Electric Company, the SawyerMann Electric Company, the Nernst Lamp Company, and the Cooper-Hewitt Company.

MARINE ENGINEERING
EMPLOYMENT BUREAU.

Full information regarding the purposes of this bureau, together with instructions regarding registration, etc., furnished upon application to Marine Engineering Employment Bureau, 309 Broadway, New York City.

All correspondence, concerning either vacancies or situations wanted, is strictly confidential.

POSITIONS SEEKING MEN.

BOILER-SHOP FOREMAN. Must be familiar with various types of marine boilers and capable of handling repair work. Knowledge of shipbuilding and repairs will be of great advantage. File 10.

CHIPPERS AND DRILLERS can find a position in a large shipyard if experienced. File 30.

FOREMAN FOR BOAT BUILDING SHOP who has had experience in constructing new hulls, who can attend to repair work and is familiar with gas engines. File 15.

FORGINGS SALESMAN wanted who is acquainted with the manufacture and use of high-grade forgings, has had experience as a salesman and who has acquaintance in this special direction. File 25.

SALESMAN FOR STEEL CASTINGS, both large and small, is wanted who understands steel casting business and who has acquaintance among purchasers. File 26.

SKILLED BOAT BUILDER who has had experience in handling men, and who can attend to the hull work in large launch works. File 14.

SUPERINTENDENT, DESIGNER AND FOREMAN wanted in a shop devoted to the building of small pleasure boats File No. 35.

MEN SEEKING POSITIONS.

We have applications registered for positions as follows, and the references of each applicant have been carefully investigated:

ASSISTANT SUPERINTENDENT, ENGINEER OR ASSISTANT ENGINEER IN ENGINEERING WORKS. Age 28; single; of English birth; has British and American licenses and has had several years' sea experience. Application No. 23.

BOILER-SHOP FOREMAN. Age 35; single; many years' experience in Navy Yard and leading shipyards. Application No. 59.

CHIEF OR ASSISTANT DRAFTSMAN—ENGINE. Age 32; married; has had sea experience and several years' experence in government and private shipyards. Application No. 25.

CONSULTING ENGINEER AND NAVAL ARCHITECT. Married; born in Germany; had many years' experience in designing, drafting and surveying. Application No. 33.

DRAFTSMAN, ENGINE AND BOILER. Age 30; unmarried; has Danish marine license; technical school graduate. Application No. 57.

DRAFTSMAN—HULL. Age 20; single; experienced in architectural work, but prefers marine drafting. Application No. 51.

DRAFTSMAN—HULL. Age 25; married; 9 years' experience in leading yards in drafting, testing materials, surveying, etc. Application No. 54.

DRAFTSMAN—HULL, OR INSPECTOR. Age 37; married; had experience both in government yards and private yards. Application No. 30.

DRAFTSMAN—HULL. Age 22; single; born in Norway; studied Technical schools in Norway and Germany; experience as draftsman, also as shipfitter. Application No. 31.

DRAFTSMAN—HULL. Age 25; single; born and educated in Germany; has had 7 years' experience in drafting, sea duty as engineer, and as shipfitter. Application No. 52.

DRAFTSMAN—HULL AND ENGINE. Age 26; single; graduated Webb Academy; has had four years' experience in navy yard work; desires connection with private shipyard. Application No. 41.

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" 103, A. E. Pittman, Box 378, New Bern, N. C.

TRADE PUBLICATIONS.

Flexible staybolts are illustrated and described in a pamphlet issued by the Flannery Bolt Company, Pittsburg, Pa. This bolt was described in the August issue of Marine Engineering.

Staybolt iron.—The Falls Hollow Staybolt Company, Cuyahoga Falls, Ohio, is sending out mailing cards on which it makes the following claims regarding its hollow staybolt iron: that it is the only staybolt iron which responds in service to the expansion and contraction of the fire box, which relieves the material in molecular strains, which is self-protected from burning, which does not make the side sheets crack, which earns its own cost in oxygen through it to the fire, which is always sure in giving warning of breakage.

Smooth-on cement packing, a new article made of a combination of smooth-on iron cement and rubber, is placed on the market by the Smooth-on Manufacturing Company, Jersey City, N. J. A pamphlet issued by the company states that the smooth-on in the packing has the same action as when in the powdered cement form—that of expanding slightly when it comes in contact with water or steam—thus rendering it useful for making flanged joints. It metalizes and thereby strengthens the packing and makes a lasting joint, which will not blow out, and which will withstand very high pressures and temperatures.

The Fire Engineers' Hand Book, containing valuable information regarding hydraulics, first aid to the injured, and "fire-hose talk," is issued by the Fabric Fire Hose Company, Sandy Hook, Conn. This company's specialty is the manufacture of a new kind of fire hose which is claimed to be absolutely waterproof. The waterproofing is accomplished by running each thread of cotton through a mixture of melted wax and gum. The fibres are then collected into strands, twisted and cabled, and become a collection of waxed ends, much the same as is done by a shoemaker or harness maker. These cables are then circularly woven into the fabric in one, two, three, and four independent plies, or double and triple jackets, and lined with Para gum. Extracts appear in the book from several hundred testimonial letters received by the company.

Engineering specialties.—James L. Robertson & Son, 204 Fulton street, New York city, have issued a 64-page illustrated catalogue, and every engineer should send for a copy, as it contains a great deal of information which will be a great aid when ordering supplies. Regarding its indicator the catalogue says: "The Robertson-Thompson indicator is a modern instrument, and was designed for the attainment of the greatest accuracy when used in connection with the high speeds in use in modern engineering practice. It is wide, with perfectly adjusted bearings, the moving parts are light, and the construction simple." Regarding the company's "take-up" device, the catalogue says: "Knowing the great trouble experienced in using detent motions on indicators to keep the cord from slipping off the drum, getting tangled and breaking, we have devised a take-up device which is so arranged that it can be put on indicators and take the place of a regular cord pulley. It can be used on reducing motions or any other attachment between the crosshead and drum of the indicator. The object of the device is to immediately pick up all slack cord which is found when detent motion is used on an indicator. The device is very simple, cannot get out of order, and requires no attention." Among the other specialties described in this catalogue are steam damper regulators, Hine eliminators, Reliance safety water columns, copper coil feed-water heaters, hot-water generators, regulating and reducing valves, pump governors, pressure regulators, steam separators, and grease extractors, automatic injectors, oil filters, exhaust pipe heads, grate bars, grease cups, "Eureka" packings, packing tools, recording gauges, gauge testing outfits, double-acting power pumps, planimeters, thermometers, oil pumps, and water gauges.

Induction coils.—The Induction Coil Company, Milwaukee, Wis., is mailing a catalogue describing and illustrating its induction coils. These coils are made for either dynamo or battery, as desired. The windings are made of silk-covered wire insulated by a special process. The core is made of annealed soft iron wire. The insulation between the primary and secondary wires is of the heaviest material possible consistent with correct construction. The insulating is especially designed to exclude all dampness. The vibrators are proof against "sticking," as the points of contact are made of platinum iridium. All styles of coils are made, for launches, stationery engines, and for automobiles. Every coil is tested before being placed on the market.

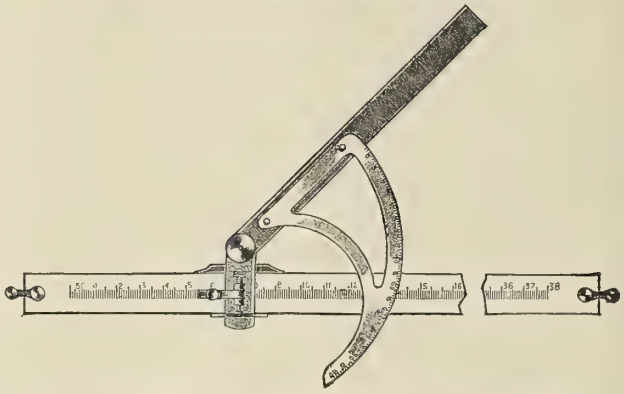
Gasoline marine engines are illustrated and described in a 64-page catalogue sent out by the Standard Motor Construction Company, 172 Whiton street, Jersey City, N. J. The Standard motors are of the four-cycle type. Among the advantages claimed for these motors are: the time of ignition may be varied in all cylinders with but one lever; the speed may be instantly changed without altering the mixture ;the automatic vaporizer does not require adjusting for any variation of speed, nor any regulation of the air supply; varying speed may be attained by means of the automatic governor; supply valves have air cushions; reverse gears run in oil-tight gear cases; the starting and reverse lever is easily operated; all parts are subjected to positive lubrication; the engine is smooth running and free from vibration; the exhaust is noiseless and free from excessive heat; one man can handle the boat from the pilot house; positiveness in starting and operating the engine; large margin in power above the amount rated. This company made the auto boat *Standard,* winner of many races in New York harbor and vicinity.

River navigation is the title of a pamphlet published by the Marine Iron Works, Station A, Chicago, Ill. This pamphlet says that the elements which enter into the design and construction of steam craft are more than usually numerous and conflicting when the boat is to be used for business purposes on shallow rapid rivers. The machinery, equipment and power must be proportioned not only to the hull, the load which the boat is to handle, and the runs it must make, but also to the shallow water and swift currents. All this requires a careful distribution of the weights and stresses, while the character of the feed water for the boiler, and the kind of fuel burned demand considerable attention. In fact, all the local conditions of each case should be well understood. The importance, also, of having a substantial hull, together with the necessity for very light draft and yet liberal carrying capacity, requires minute calculations of the weight and strength of material for the hull, as also the model or bearing lines that are to sustain the boat. The Marine Iron Works make a specialty of light-draft boats for river navigation, and any one desiring such a boat would do well to send for a copy of this catalogue.

IF A

Starrett Protractor

is once used, to use any other will be like returning to a bad habit.



In Material, Design, Workmanship, and Accuracy, this instrument is not excelled.
Made with bevel arm 15 to 36 inches; auxiliary blades carried in stock up to 36 inches.

Send for our FREE CATALOGUE No. 17L, which tells of all the STARRETT TOOLS.

The L. S. STARRETT CO., ATHOL, MASS.

A Chance Courtship

is a story of an unconventional love match, well told and beautifully illustrated. As a bit of readable fiction the story is well worth writing for. It is contained in a handsomely bound book of 128 pages, a portion of which is devoted to the attractive mountain and lake resorts along the Lackawanna Railroad. It is a book you will like to see. It may be had by sending 10 cents in postage stamps to T. W. Lee, General Passenger Agent, Lackawanna Railroad, New York.

NEW CATALOGUE FRESH FROM THE PRESS—ASK FOR IT.

THIS SPACE is too limited to give any idea of our splendid line of

Marine Engineering Thermometers and Gauges

Our New Catalogue No. 1 tells all and it's well worth asking for.

HOHMANN & MAURER MFG. CO., ROCHESTER, N. Y., U. S. A.

NEW YORK
85 CHAMBERS STREET

LONDON, ENG.
98 CLERKENWELL RD., E. C.

CHICAGO
119 LAKE STREET

The tendency of to-day

is to use grease wherever possible, because of its reliability and economy.

Dixon's new Booklet

Oil vs Grease

carefully discusses the question with particular reference to

Dixon's Ticonderoga Graphite Greases

Write for a free copy.

JOSEPH DIXON CRUCIBLE CO.

Jersey City, N. J.

Please Mention This Publication.

Last Chance at

Bound Volumes

OF MARINE ENGINEERING

Only a few Stray Volumes Remain as follows:

1899, Vols. III. and IV., Price	$2.50
1901, Vol. VI. . . . "	4.00
1902, Vol. VII. . . . "	4.00
1903, Vol. VIII. . . . "	4.00
	$14.50

$10.00 gets the Set of Four Books

Each volume is substantially bound in black cloth with leather corners and back.

YOU PAY EXPRESSAGE

Marine Engineering, 17 Battery Place, New York

The De Laval Steam Turbine Company, Trenton, N. J., is mailing a folder calling attention to the advantages of its turbine for direct-connected purposes. Among the advantages claimed are compactness, saving of foundations, simplicity, and economy of operation. Catalogues sent upon application.

The preservation of metal surfaces is the principal topic of discussion in the September issue of *Graphite*, published by the Joseph Dixon Crucible Company, Jersey City, N. J. An article by Mr. R. H. Fisher states that "in selecting a paint for the preservation of steel, the first consideration must be the purity of the ingredients. The vehicle must be only the purest of fire-boiled linseed oil, for eventually the life of the paint will depend upon the oil. The pigment must be one that will not undergo chemical change under any condition, and it must assume such form that it may be made to protect the oil or binder, and at the same time readily shed water. Also, it should work easily under the brush, thus insuring a good covering capacity. On enclosed work the paint is subjected to alkali, and in nearly all buildings the basement and first two stories are subjected to the action of such powerful corrosives as the sulphurous fumes produced by the process of combustion." The Joseph Dixon Crucible Company claims that its silica-graphite paint meets all the above requirements. This paint is being used by the North German Lloyd Steamship Company on its new piers at Hoboken, N. J.; on the new Trinity building; and on the new St. Regis Hotel, New York city, and on many other well-known buildings throughout the country.

A new clamp ring.—The Brown & Sharpe Manufacturing Company, Providence, R. I., is mailing a folder calling attention to a new clamp ring for micrometer calipers, which it has placed on the market. The folder says: "The device is simple and unusually efficient, a slight movement of the knurled ring being required to clamp the measuring spindle securely. It does not rotate the spindle when clamping. It is often desirable, after a measurement has been taken, to clamp the spindle to retain the setting, and it is important that the spindle should not be rotated or moved longitudinally. The construction of the device is such that the possibility of disturbing the adjustment when clamping is entirely avoided. Another excellent feature is that the tension on the measuring spindle can be adjusted without disturbing the adjustment of the screw and nut. This is especially convenient when measuring a number of pieces for comparison, as sufficient tension can be put on the spindle to prevent its turning when the work is passed between the measuring points, and at the same time the spindle can be left sufficiently free to allow of slight adjustments. The rotation of the spindle cannot alter the setting of the tension. The various parts are accurately fitted together to prevent the possibility of any dirt getting into them, and the movement of the parts is so slight that there is practically no wear."

WATCH THIS SPACE FOR OUR NUMEROUS SPECIALTIES.

WALWORTH MFG CO. TOOLS and SUPPLIES for STEAM WATER and GAS USERS BOSTON MASS.

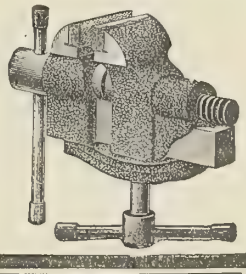
Walworth Extra Heavy Bench Pipe Vise

Is made especially for use in

MARINE REPAIR SHOPS AFLOAT AND ASHORE,

Grips pipe 1 to 6 inches inclusive, and by reason of its solid and substantial "make up," also furnishes a first-class tool for general machine work.

Will not Crush or Jam Pipe Like Ordinary Vises



JOBBERS SELL THEM—IF YOURS DON'T, WRITE.

New York, Park Row Building. **WALWORTH MFG. CO.,** Boston, 128 Federal Street.

Write for our BLUE CATALOGUE "D." showing complete line of engineers' pipe fitting tools.

Self-locking screw clamps are described and illustrated in Catalogue No. 5, issued by James L. Taylor, 30 Lawrence street, Newark, N. J. These clamps should have a good sale among shipyards and boat shops. They are designed, so the catalogue states, to fill a long-felt want for an efficient and time-saving clamp, and have been severely tested with satisfactory results in the Brooklyn and Charleston navy yards.

Pneumatic compression-yoke riveters, portable and stationary, for boiler makers, shipbuilders, etc., are the subject of illustrated Catalogue No. 3, issued by the Hanna Engineering Works, 820 Elston avenue, Chicago, Ill. Regarding these riveters the catalogue states that in them is combined in a simple form toggles, levers, and guide links, to give the large opening of the toggle joint movement with its gradually increasing pressure until the desired pressure is reached, then a simple lever movement throughout a considerable space under uniform maximum pressure. This space, where a uniform maximum pressure is available, is sufficient so that there need be no uncertainty about the pressure applied to the rivet; and the machine being once adjusted for a certain length of rivet and thickness of plate, will require no further adjustment for ordinary variations in lengths of rivet, heat, or thickness of plates.

Northern steel spherical motors for direct connection to machines and tools are illustrated and described in Booklet 33, issued by the Northern Electrical Manufacturing Company, Madison, Wis. The booklet states: "The popularity of the Northern steel spherical motors has caused demand for these motors in the smaller sizes, and to meet this our engineers have from time to time added new small frames to such an extent that we have decided to classify them separately, to make them more easily distinguishable, and to avoid encumbering our lists of other sizes with these machines. The purpose of this booklet, therefore, is to give to these small motors a place by themselves. These machines are miniature representations of the standard spherical motors built by this company, with such deviations from our regular construction as are necessitated by the smallness of the machines. In designing these new sizes, our engineers have had uppermost in their minds machines which would merit the name 'Northern.' Coupled with the desire to produce a worthy machine has been the aim to devise details, which, by their simplicity, strength and convenient arrangement should make the motors so easy to operate and cheap to build as to extend materially the field of the small motor. The machines are all multipolar, with bar or coil wound armatures, susceptible to good speed regulation."

Marine gasoline engines are illustrated and described in a catalogue issued by the Wolverine Motor Works, Grand Rapids, Mich. This company makes gasoline, pleasure, and business boats of all descriptions. The following is a copy of a testimonial the company has recently received from the Muskegon River Transportation Company, Newaygo, Mich.: "The gasoline boat *Helen C. La Moore,* built for us by the Wolverine Motor Works, is a fine boat, and exceeds our expectations in many ways. She is running between Muskegon and Newaygo, a distance of 49 miles, up the Muskegon river, which is a shoal, swift running stream. We think your chainless stern wheel transmission is the only transmission. We are giving ours a severe test every day and do not think a sprocket wheel and chain is to be compared with the cranks and side rods, and to any one interested in river navigation we cheerfully and heartily recommend this type of boat. The engine has never given us any trouble, and is so simple any one can start it and run it. We can run it from 25 revolutions to 300 revolutions per minute, and we consider it just as reliable as steam, and could not be induced to change to steam. To any one building a boat, or contemplating building one, we do not hesitate to advise them to investigate the Wolverine motor. We expect to want several more of your motors in the near future, as they are very economical on fuel."

IN EVERY SEA

that is furrowed by prows of trade or war,

Oxide of Zinc

holds its own against the varying elements. It is the only white pigment that can withstand marine exposure.

FREE: OUR PRACTICAL PAMPHLETS

"The Paint Question,"
"Paints in Architecture,"
"Paint: How, Why and When."

THE NEW JERSEY ZINC CO.
71 BROADWAY
NEW YORK

We do not grind zinc in oil. List of zinc paint manufacturers is furnished on request.

CONDENSER TUBES

last longest if made of

"BENEDICT-NICKEL"

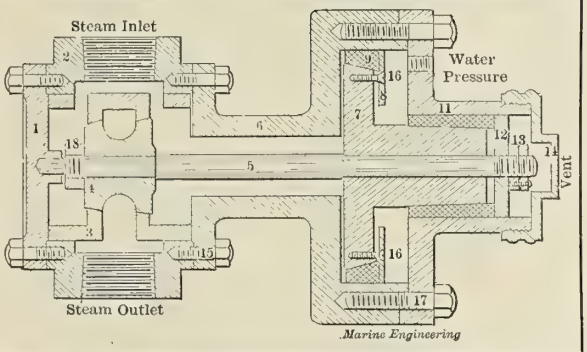
ELECTROLYSIS is positively resisted because "Benedict-Nickel" is an alloy of nickel and copper.

CORROSION is impossible, as the tubing is so perfectly homogeneous.

Our treatise on "Electrolysis of Condenser Tubes" is very valuable and costs you nothing. Send for it.

BENEDICT & BURNHAM MFG. CO.
WATERBURY, CONN.
New York, 253 Broadway Boston, 172 High St.

Reward for Your Thoughts



MULLIN'S
Automatic Controller
for
Boiler Feed Pumps

THE GREAT POINT in this valve is our ability to **always maintain** an **excess water pressure** over steam pressure, regardless of the fluctuations of the latter; without the use of springs, levers or weights.

WE WILL GIVE $100.00

$50.00 for the best,
$30.00 for the second,
$20.00 for the third

best reasoning how that excess pressure is obtained and maintained, together with conclusions reached regarding its efficiency and operation on a Battery of Boilers.

Said competition to be confined to Stationary and Marine Engineers and Firemen in the United States and Canada.

Article to contain not more than 300 words.

Competition to close November 20th, and Awards made December 1st, 1904

The writer must give his name, the name of the firm where he is employed, and the name of the Journal in which he saw this specification.

Two Competent Mechanical Engineers, assisted by our Mr. R. J. Mullin, will act as Judges.

The successful articles will be published.

The Federal Valve Co.
2534 Western Ave., Seattle, Wash.

Gas engine builders should send to the Billings & Spencer Company, Hartford, Conn., for a copy of Circular E, which is devoted to gas engine parts forged of the best steel, and which are always carried in stock for prompt delivery.

A free calendar.—The Marine Manufacturing and Supply Company, 157 South street, New York city, manufacturer of capstans, windlasses, steering apparatus, mechanical telegraphs, flags and signals, shipbuilders' materials and supplies, chandlery, hardware, and engineers' supplies, is distributing monthly a neat desk calendar, which will be forwarded upon application to readers of Marine Engineering.

Points of interest at the Louisiana Purchase Exposition, is the title of Booklet No. 41, issued by the Northern Electrical Manufacturing Company, Madison, Wis. The booklet states that the company is exhibiting modern types of machine tools arranged for electrical operation by Northern motors. Many of these machines, with their motive power, are illustrated in this bulletin. The company is also sending out a free map of the exposition grounds.

Invitation to inspect plant.—The Chapman Valve Manufacturing Company, Indian Orchard, Mass., sent engraved invitations to visit its plant to members attending the twenty-third annual convention of the New England Water Works Association, which met at Holyoke, Mass., in September. This company makes valves of all kinds, and many valves of its make are used in the United States navy and in vessels of the merchant marine.

Coal-handling machinery for boiler rooms, shipping docks, coaling stations, power stations, etc., is described and illustrated in Catalogue 047 issued by the C. W. Hunt Company, West New Brighton, Staten Island, N. Y. Automatic railways, overhead trolleys, hoisting elevators, boom towers, and steam and electric hoisting engines are among the machinery described. The catalogue states that the company has had more than thirty years' experience in this business, and that its works are completely equipped with specially-constructed machine tools.

Electrical substitute for hot-water bag.—The H. W. Johns-Manville Company, 100 William street, New York city, is sending out a mailing card on the return half of which is printed: "Kindly have your representative call with an 'Electrotherm' (the electrical substitute for the hot-water bag), to demonstrate its superiority and convenience; its constant and uniform heat subject to regulation, and its adaptability to special uses. Demonstration to consist merely in screwing the plug of the 'Electrotherm' into an ordinary incandescent light socket, and requiring not mare than ten minutes."

Mechanical accountants are described and illustrated in a booklet issued by the Mechanical Accountant Company, 17 Warren street, Providence, R. I. This company makes a machine, so the catalogue says, which will rapidly and accurately perform the most complicated kinds of arithmetical work by simply pressing the keys, without any mental calculation whatever. The machine is claimed to be constructed on entirely original lines. It is enclosed in a metal case 13 inches long, 7 3-4 inches wide, and from 2 to 6 inches high, and weighs about 12 pounds. It has a capacity of nine hundred and ninety-nine millions, which may be increased if desired. Such a problem as the following may be done by an experienced operator in 11 seconds, so the catalogue states: find the interest on $352.45 for 78 days at 4 per cent. Answer, $3.05.

ELECTRIC HEATING APPARATUS

"Unit" Enameled RHEOSTATS

Simplex Electric Heating Co.

Cambridgeport, Mass. *Send for Catalog*

Injectors, boiler testers, and steam-jet syphon pumps, are illustrated and described in a catalogue issued by the Schutte & Koerting Company, Philadelphia, Pa.

A new boring tool is described in a folder which the Goodell Manufacturing Company, Greenfield, Mass., is mailing. The tool is designed especially for boring holes where difficulty is usually experienced in using an ordinary bit brace.

Pumping machinery at St. Louis.—Forty types of pumping machinery exhibited at the World's fair, are described and illustrated in a pamphlet distributed by the International Steam Pump Company, 114 Liberty street, New York city.

Gasoline engine tests.—Fairbanks, Morse & Company, Chicago, Ill., are distributing a folder giving extracts from the record of the capacity, economy, and endurance tests of one of their 60-horse-power gasoline engines direct connected to two 10 by 12 double acting triplex pumps for the Philadelphia water works.

Clocks for engine rooms, engine counters, gauge cocks, twenty varieties of gauges, gauge boards. indicators, pyrometers, pumps of several varieties, revolution counters, syphons, and valves, are brought to the attention of engineers in a folder mailed by the Standard Gauge Manufacturing Company, Syracuse, N. Y.

Industrial applications of the Sprague electric motors are illustrated and described in Bulletin No. 218, issued by the Sprague Electric Company, 527 West 34th street, New York city. Bench drills, radial drills, centrifugal pumps, hydraulic wheel presses, pipe cutting and threading machines, are among the examples given of machine tools operated by this company's electric motors.

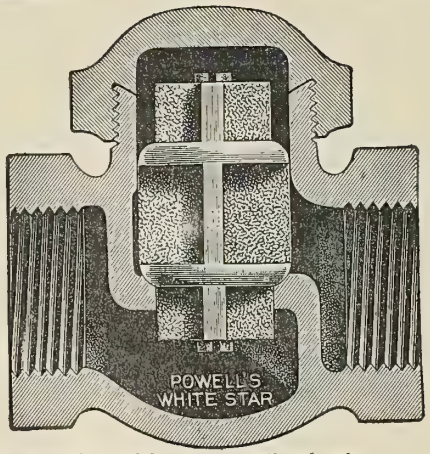
Cold saw cutting-off machines are described in a 28-page catalogue issued by the Newton Machine Tool Works, Philadelphia, Pa. Among the machines illustrated are bar cold saws, I-beam cold saws, combination cold saws, crank-shaft cold saws, special forging, girder rail, steel foundry, vertical steel foundry, double axle, and armor-plate cold saws.

Asbestine fire-proof and weather-proof cold-water paint is described in a folder issued by the Alden Speare's Sons Company, 100 William street, New York city. Eighteen samples of this paint accompany the folder, which states that the paint "gives a whiter and handsomer finish than oil paint, and contains no oil, so will not turn yellow or change color with age."

A new water-tube boiler.—The Rust Boiler Company, Pittsburg, Pa., is distributing an illustrated catalogue describing its water-tube boilers for stationary use. This boiler was first used at the works of the Colorado Fuel and Iron Company, Pueblo, Col., and the catalogue states that it has many points of superiority over the ordinary stationary type of water-tube boilers.

A good anti-fouling paint.—The Hertzog Paint and Varnish Company, Philadelphia, Pa., has received many testimonials from users of its green anti-fouling paint. C. H. Osgood, owner of the steam yacht *Narwhal* writes: "I would say that the green anti-fouling paint bought of you last spring, and used on the bottom of my steam yacht *Narwhal,* has given better satisfaction than any paint I ever used; there was not a barnacle or bit of grass upon it. It also stood well above low-water line, when exposed to the air. I shall certainly use yours again, next season."

"WHITE STAR"
Reversible and Re-Grinding CHECK VALVE



Disks in one piece with double seating heads
Both ends made to gauge.
Economical because reversible and made of best material.
Will withstand a temperature of 2,000 degrees.
Simple and convenient—Re-grinding effected by inserting screw-driver in slot at either end of disk and rotating back and forth.

THE WM. POWELL CO.
Everything in the steam line for the boiler and engine room.
CINCINNATI, OHIO, U. S. A.
New York Agent: H. H. BEALS, 51 Cliff St.
Philadelphia Agent C. J. RAINEAR & CO., 515 Arch St.

Luger automatic carbines are illustrated and described in a folder issued by Schoverling, Daly & Gales, 302 Broadway, New York city.

Steam circulation is the subject of a mailing card sent out by Warren Webster & Company, Camden, N. J. A booklet on the subject will be sent free upon application.

Flinn steam traps are the subject of a folder sent out by Richard J. Flinn, West Roxbury, Mass. This device is fully described in the September, 1904, issue of Marine Engineering.

The Fort Wayne Electric Works, Fort Wayne, Ind., is distributing Catalogue of Parts No. 2010, devoted to alternating current, 104-volt, Form C., Wood arc lamps.

Multiphase revolving field-belted generators and other electrical appliances are described in Bulletin 1057, issued by the Fort Wayne Electric Works, Fort Wayne, Ind.

Steam accumulators are the subject of Bulletin 100, issued by Henry R. Worthington, 114 Liberty street, New York city.

Diaphragm hand-power pumps, steering gears, and marine appliances, are the subject of the latest "hang it" mailing card sent out by the Edson Manufacturing Company, 255 Atlantic street, Boston, Mass. This company makes a specialty of steering gears, and its gears are in use on some of the fastest and best-known yachts afloat.

UNITED STATES METALLIC PACKINGS
RELIABLE—SATISFACTORY—EFFICIENT
FOR PISTON RODS AND VALVE STEMS OF MAIN AND AUXILIARY ENGINES
The United States Metallic Packing Co.
427 North Thirteenth St., PHILADELPHIA. CHICAGO, 509 Great Northern Bldg.

BUSINESS NOTES.

A FREE TRIAL.—The Cool Running Graphite Metal Company, 430 East 2d street, Cincinnati, Ohio, offers, in order to introduce its cool-running graphite metal, to send a free sample to all readers of MARINE ENGINEERING who mention this magazine.

NEW PACIFIC COAST AGENCY.—The Crandall Packing Company, Palmyra, N. Y., manufacturer of packings for steam, water, air, gas, and ammonia, has appointed the Pacific Engineering Company, Seattle, Wash., its agents on the Pacific coast. The Pacific Engineering Company is composed of Mr. J. P. Badenhausen, formerly with the Hamburg-American line at Hoboken, N. J., and Mr. C. B. Lamont, formerly with the Union Iron Works, San Francisco, Cal., and with the Navy Department at Washington. The firm will carry a complete line of Crandall packings.

EXHIBIT AT ST. LOUIS.—The Northern Electrical Manufacturing Company, Madison, Wisconsin, has an exhibition at the World's fair, demonstrating the application of Northern motors to various types of machines and tools, such as engine lathes, milling machines, grinders, shapers, bolt cutters, and disc grinders. The company states that its system involves the use of a single voltage, while giving wide range of speed in a small standard motor frame.

THE AMERICAN BUREAU OF SHIPPING, 66 Beaver street, New York city, in the *Record of American and Foreign Shipping*, reports the following vessels classed and rated: American screw *George W. Elder*, American screw *Ontario*, American schooner *Grace A. Martin*, American schooner *Margaret Haskell*, *American* schooner *Vanlear Black*, American bark *Rachel Emery*, American three-masted schooner *Joel Cook*, American three-masted schooner *Julia P. Cole*, American three-masted schooner *Mary Sanford*, American barge *Mingo*, American barge *Newburgh*, and American barge *Spring*.

RESULTS PROVE IT!

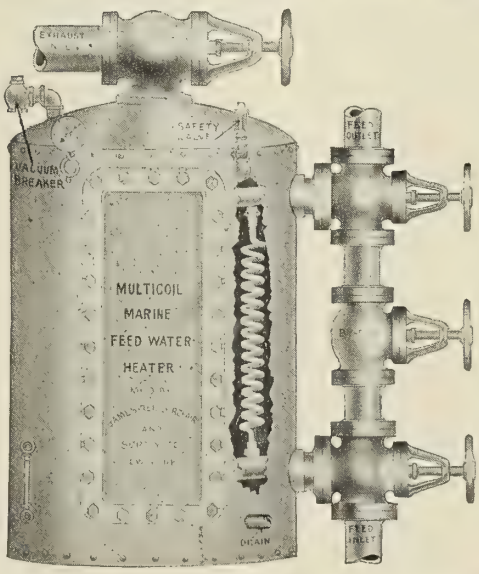
Let Us Prove It to You—
As We Have to Others Who Pay for the Coal.

Our Multicoil Feed-Water Heater IS A SUCCESS

IF YOU CANNOT KEEP UP STEAM
IF YOU CANNOT MAKE TIME
IF YOU CANNOT DEVELOP H. P.
} *OUR HEATER WILL HELP YOU*

A FEW VESSELS THAT HAVE THEM:

Monroe,
Jamestown,
Hampton Roads,
Horatio Hall,
North Star,
Middletown,
Manhattan,
Kershaw,
Powhattan,
Juniata,
Essex,
Chatham,
D. H. Miller,
Admirals Sampson and Schley,
Lighter Edgewater,
The Four New Lackawanna R. R. Ferryboats.



Asbury Park,
Sandy Hook,
Henry Wilson,
Sprigg Carroll,
Calvin Austin,
Patrol,
General Meigs,
Yachts: Celt, Carmina, Calumet, Waturus and Pioneer.
Dredges: Atlantic, Pacific, Perry, Caucus, St. John.
Government Dredges: 43, 44, 45, 46, 47, 51.

ASK US FOR A CATALOGUE.

THE JAMES REILLY REPAIR & SUPPLY CO.

229-233 WEST STREET, - - - NEW YORK CITY

Engineering specialties at the St. Louis fair.—The Lunkenheimer Company, Cincinnati, Ohio, has an exhibition of its safety valves, whistles, lubricators, injectors, oil and grease cups, and other engineering specialties in Machinery Hall, location 5-G, block 26.

New iron works.—The Quintard Iron Works have recently incorporated and will manufacture and repair, at the foot of East 12th street, New York city, steamers, marine and stationary engines and boilers, gas works machinery, sugar machinery, and machinery in general. The officers are: president, N. F. Palmer; vice-president, Stevenson Taylor; treasurer and manager, George Q. Palmer; secretary and assistant treasurer, J. M. Wellman.

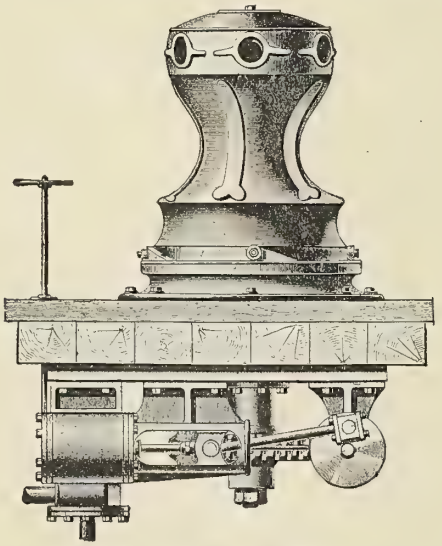
Binoculars for the Navy Department.—The Warner & Swasey Company, Cleveland, Ohio, announces that the United States Navy Department has on three occasions appointed special boards to make tests of the leading American and foreign makes of prism binoculars, and that on all three occasions the Warner & Swasey prism binoculars were adopted by the navy as a result of the report of these boards. All ships of the navy, the company states, are now equipped with its binoculars.

One hundred dollars given away.—The Federal Valve Company, 2534 Western avenue, Seattle, Wash., claims that its valve is always able to maintain an excess water pressure over steam pressure, regardless of the fluctuations of the latter, and without the use of springs, levers, or weights. The company is offering as prizes to marine and stationary engineers in the United States and Canada, the sum of one hundred dollars for articles telling how the excess pressure is obtained and maintained, together with conclusions reached regarding its operation on a battery of boilers. The money has been deposited with the Scandinavian American Bank of Seattle, to be awarded December 1, 1904, in accordance with the decision of three judges. Full particulars may be obtained upon application to the Federal Valve Company.

HERE'S A PICTURE OF OUR

STEAM CAPSTAN

With extra heavy warping barrel; one of the many **Capstans, Windlasses, Steering Engines,** and **Other Yacht and Ship Fittings** which we manufacture.



For Particulars Address

THE TEXTILE-FINISHING MACHINERY CO.

17 Exchange Place, Providence, R. I.

New York Office, 39 Cortlandt Street

MARINE ENGINEERING EMPLOYMENT BUREAU.

Full information regarding the purposes of this bureau, together with instructions regarding registration, etc., furnished upon application to Marine Engineering Employment Bureau, 17 Battery Place, New York City.

All correspondence, concerning either vacancies or situations wanted, is strictly confidential.

POSITIONS SEEKING MEN.

BOILER-SHOP FOREMAN. Must be familiar with various types of marine boilers and capable of handling repair work. Knowledge of shipbuilding and repairs will be of great advantage. File 10.

FOREMAN FOR BOAT BUILDING SHOP who has had experience in constructing new hulls, who can attend to repair work and is familiar with gas engines. File 15.

SKILLED BOAT BUILDER who has had experience in handling men, and who can attend to the hull work in large launch works. File 14.

STEAMFITTER AND COPPERSMITH acquainted with plumbing, and able to make estimates; also to take charge in a general way of plumbers, coppersmiths and steamfitters. File No. 36.

SUPERINTENDENT, DESIGNER AND FOREMAN wanted in a shop devoted to the building of small pleasure boats. File No. 35.

ACTIVE AND PRACTICAL SUPERINTENDENT for yacht, launch and boat-building works wanted. One who can take a financial interest in the business preferred. Good opportunity to become associated with a growing business in which all interested are working. File No. 38.

MEN SEEKING POSITIONS.

We have applications registered for positions as follows, and the references of each applicant have been carefully investigated:

ASSISTANT SUPERINTENDENT, ENGINEER OR ASSISTANT ENGINEER IN ENGINEERING WORKS. Age 28; single; of English birth; has British and American licenses and has had several years' sea experience. Application No. 23.

BOILER-SHOP FOREMAN. Age 35; single; many years' experience in Navy Yard and leading shipyards. Application No. 59.

CHIEF OR ASSISTANT DRAFTSMAN—ENGINE. Age 32; married; has had sea experience and several years' experence in government and private shipyards. Application No. 25.

CONSULTING ENGINEER AND NAVAL ARCHITECT. Married; born in Germany; had many years' experience in designing, drafting and surveying. Application No. 33.

DESIGNER AND DRAFTSMAN. Has had many years' experience in launch and river boat work. Designed some of the fastest river boats in the country. Application No. 61.

DRAFTSMAN, ENGINE AND BOILER. Age 30; unmarried; has Danish marine license; technical school graduate. Application No. 57.

DRAFTSMAN—HULL. Age 20; single; experienced in architectural work, but prefers marine drafting. Application No. 51.

DRAFTSMAN—HULL. Age 25; married; 9 years' experience in leading yards in drafting, testing materials, surveying, etc. Application No. 54.

DRAFTSMAN—HULL, OR INSPECTOR. Age 37; married; had experience both in government yards and private yards. Application No. 30.

DRAFTSMAN—HULL. Age 22; single; born in Norway; studied Technical schools in Norway and Germany; experience as draftsman, also as shipfitter. Application No. 31.

DRAFTSMAN—HULL. Age 25; single; born and educated in Germany; has had 7 years' experience in drafting, sea duty as engineer, and as shipfitter. Application No. 52.

SOCIETY OF NAVAL ARCHITECTS AND MARINE ENGINEERS.
12 West 31st Street, New York.

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TRADE PUBLICATIONS.

The Akron Chilian mill, for the wet grinding of metalliferous rock, is the subject of an illustrated catalogue issued by the Wellman-Seaver-Morgan Company, Cleveland, Ohio.

Steam and water valves are illustrated in a booklet issued by the Chapman Valve Manufacturing Company, Indian Orchard, Mass. The booklet contains a list of about 400 manufacturing and power plants, public buildings, etc., which use the Chapman valves, in sizes from 1-4 inch to 72 inches in diameter, and operated by hand, air, electricity, or hydraulic power.

Marine cable ways, and cable ways for hoisting and conveying, employed in the construction of dry-docks, piers, dams, etc., and in the discharging of vessels, are concisely described and profusely illustrated in a 160-page catalogue issued by the Lidgerwood Manufacturing Company, 96 Liberty street, New York city. The halftone illustrations contained in this catalogue are very handsome pieces of work, and illustrate Lidgerwood cables in actual operation. Among the examples given are the U. S. S. collier *Marcellus* delivering coal at sea to the U. S. S. *Massachusetts,* at a distance of from 300 to 400 feet; various views show H. M. S. *Trafalgar* being coaled at sea; the Russian battleship *Retvizan,* and other naval vessels coaling at sea; traveling cable ways in canal excavation; cable ways for rebuilding the government breakwater at Cleveland, Ohio; several cable ways used in dry-dock excavations; cable ways used in dam building, bridge building, and in logging; cable ways for building gun emplacements; for discharging cargoes on the Amazon river; and a great many other uses for which the Lidgerwood cables are used all over the world. There are more than 220 halftone illustrations, every one of which is interesting and descriptive, beside a large number of line drawings. Every ship owner, or builder of ships, dams, dry-docks, locks, fortifications, or piers should send for a copy of this catalogue.

Vertical marine engines are described and illustrated in catalogue 163, issued by the American Blower Company, Detroit, Mich. Regarding the Type B engine, the catalogue states that it is of extra heavy construction throughout. The base is a solid casting of box form, dished to receive the drippings, both oil and water, and is provided with a suitable drain pipe. The main bearings are made large to resist heating and wear, are lined with babbitt metal, and are provided with ring oilers and an oil ring to prevent the oil working out along the shaft. The lower halves of these bearings are cast solid in the base with chambers to hold the oil, which are provided with sight feed oil gauges and the necessary drain cocks. The frame of the engine is of cast iron and steel. The back is of heavy iron casting to which are fastened the crosshead guides. The frame is open, giving easy access to parts requiring adjustment. The cylinder and steam chest are cast in one piece. The steam ports are ample. The valve is of the double piston type, making it perfectly balanced. The eccentric and eccentric strap are of cast iron. The piston is hollow, turned to a close fit in the cylinder, and is provided with snap packing rings. The rings are bored slightly eccentric with the outside, in order that the outward pressure on the cylinder will remain approximately uniform. They are sprung together and returned so that they will fit to start with, and are interchangeable. The crank shaft is a solid steel forging provided with counter balances of proper weight to make the engine run smoothly. Cylinder lubrication is furnished by the Detroit or the Michigan sight feed lubricator. The Rites automatic fly wheel governor or a throttle valve governor is furnished, as may be preferred. A special feature of the Rites governor is the spring leverage adjustment, the object of which is to afford as close regulation at one speed as at another.

When writing to advertisers please refer to Marine Engineering.

Wyman & Gordon, Worcester, Mass., are distributing a booklet entitled "A Few Words About Electrical Matters."

The American Steel and Wire Company, The Rookery, Chicago, Ill., is sending out a folder giving prices of steel and copper wire on spools.

A popular gasoline motor.—The Bridgeport Motor Company, Bridgeport, Conn., is issuing a booklet containing testimonials from ninety customers who have bought and operated "The Motor that Motes," and who have written the company expressing their satisfaction with the Bridgeport engines.

Four-cycle marine gasoline engines.—The Royal Equipment Company, Bridgeport, Conn., is distributing a circular illustrating and describing its gasoline engines. Regarding the 3 H. P. reversible engine the circular says that by a simple mechanism, which is a part of the engine and not an attachment, the valve movement is controlled by a lever. The workmanship of the engines is claimed to be of the best, and only the highest grade of material is used in making them.

Engine tests.—The Reeves Engine Company, Trenton, N. J., is distributing a folder showing the results of a test of one of its engines, made by Professor R. C. Carpenter, at Cornell University, Ithaca, N. Y., in August, 1904. The purpose of the tests was to determine the steam consumption, mechanical efficiency, and general behavior of the engine under various conditions of load. A description of the engine and the results of the test, which were most flattering to the makers, will be furnished upon application to the company.

Mercury plumb bobs are the subject of a leaflet distributed by the Brown & Sharpe Manufacturing Company, Providence, R. I. These bobs are made from solid steel, bored out and filled with mercury, which makes them unusually heavy in proportion to their size. An important feature is that the outside is accurately ground true with the center line, and every care is taken to have the points, which are hardened, hang true. Their comparatively small diameter allows them to be used close to corners and walls.

Yachtsmen and others interested in the subject of cheap power plants for boats calling for 25 or more horse power, will want to send to Mr. Cyrus Robinson, vice-president of the Power and Mining Machinery Company, 52 William street, New York, N. Y., for a catalogue of the American Crossley suction gas plant. These plants generate water gas which is used in gas engines, doing away with carburetters, mixers, and other troublesome devices necessary when gasoline is used. There is nothing explosive in these plants, and there is no storing of steam, gas, or anything else dangerous. It is claimed for these plants that their operation is of the greatest simplicity and efficiency. They are guaranteed to give about a horse power an hour on a pound of coal.

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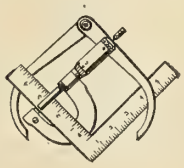

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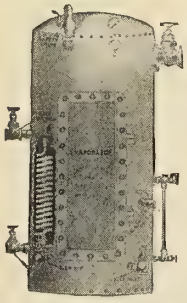

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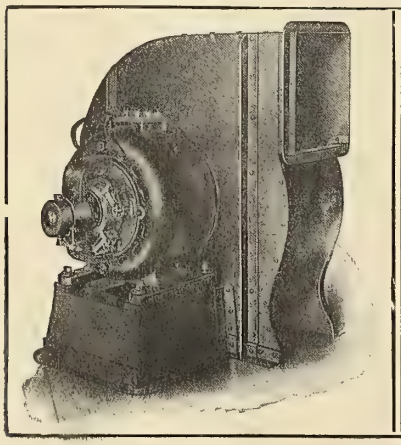

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Pneumatic hammers, drills, boring machines, air motor hoists, air compressors, and rock drills are described in illustrated circular No. 14, issued by the Rand Drill Company, 128 Broadway, New York city. Regarding the company's "Imperial" pneumatic hammers, the circular states that they strike a very hard blow, but as they cushion on live air they have practically no vibration, and therefore cause no annoyance to the operator. The valve is said to be simple, consisting of one solid cup shaped piece, and moves in the same direction as the piston, which on the upward stroke travels within the valve, giving a long stroke with a short barrel. All parts are interchangeable, and any ordinary mechanic can make the occasional repairs that may be required.

Electric light outfits for launches, yachts, house boats, private residences, etc., are illustrated and described in a 56-page catalogue issued by the Richardson Engineering Company, Hartford, Conn. Automobile charging plants, steam engine and boiler outfits, steam generator sets, and search lights are also described in this catalogue. Regarding the company's electric light outfit the catalogue states: "We have all appreciated the advantages of electric light for boats, on account of its healthfulness, cleanliness, and safety, with no odor, and almost no heat. We have a complete line of electric light outfits suitable for craft of any kind and size. No boat need be without its electric lights, as our system enables even the smallest to have its complete outfit."

Tackle blocks, wood, wrought iron, and steel are described and illustrated in an 84-page catalogue issued by the Western Block Company, Lockport, N. Y.

Electrical machinery is the subject of an illustrated 60-page catalogue issued by the Triumph Electric Company, Cincinnati, Ohio.

Electrically welded screws are the subject of a folder issued by the Cleveland Cap Screw Company, Cleveland, Ohio. This folder says: "The electric welding process, as applied to screw manufacture, is original with us, and we have been using it successfully for two years."

Yacht and marine plumbing specialties are illustrated and described in a 65-page catalogue issued by Alfred B. Sands & Son, 134 Beekman street, New York city. Any one interested in this line of work should not fail to send for a copy.

Shipbuilders and yachtsmen interested in the subject of dead lights, deck lights, ventilators, coaling scuttles, pumps, bitts, hose, windlasses, capstans, winches, and other marine supplies should send for Catalogues A and B, issued by the Marine Manufacturing and Supply Company, 157 South street, New York city.

Lubricators and lubricating devices for steam, gas, and gasoline engines are described in illustrated Catalogue No. 2, issued by the G. B. Essex Brass Company, Detroit, Mich. Among the many devices of this nature described are double sight-feed lubricators for compound engines and high pressure cylinders, sight-feed lubricators for gasoline engines and air compressors, automatic multifeed oilers, oil pumps, grease cups, globe valves, angle valves, etc.

Induced draft for boilers.—Mr. W. Carlile Wallace, 22 Thames street, New York city, American representative of John Brown & Co., Birmingham, England, manufacturers of corrugated furnaces and induced draft apparatus, is distributing a folder showing the results of tests of the Ellis & Eaves system of induced draft fitted to Scotch and water tube boilers. These tests show great increased efficiency and economy over natural draft, without injury to the furnace, as is apt to be the case when forced draft is used. A copy of the circular may be obtained upon application to Mr. Wallace.

Duplex compound engines, manufactured by the American Engine Company, Bound Brook, N. J., are the subject of an illustrated folder distributed by the company. The folder states that this engine requires no more floor space than the most compact simple engine, and that it has fewer parts than any other compound engine. These engines are in use in the plants of the American Steel and Wire Company, at Worcester, Mass., Cleveland, Ohio, Joliet, Ill., Anderson, Ind., and Waukegan, Ill.; in the Baldwin Locomotive Works, Philadelphia, Pa.; in the United Gas Improvement Company's plant at Philadelphia, and in many other well-known manufacturing plants.

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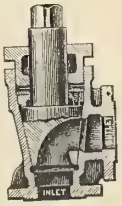

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BUSINESS NOTES.

A MATCH SAFE SENT FREE.—The Detroit Leather Specialty Company, Detroit, Mich., will send free to every reader of MARINE ENGINEERING, upon request, a neat leather match safe to carry in the pocket, the only condition being that MARINE ENGINEERING be mentioned in the request.

LIDGERWOOD MARINE CABLEWAYS IN RUSSIA.—Mr. Spencer Miller, chief engineer of the Lidgerwood Manufacturing Company, New York city, has returned from St. Petersburg, Russia, where he went by request of the Russian government to inspect ten Lidgerwood marine cableways which had been installed upon the ten largest battleships and cruisers of the Baltic fleet.

ELECTRICAL CONTRACT AWARDED.—The Northern Electrical Manufacturing Company, Madison, Wis., has been awarded the contract for the entire motor equipment of the new shops of the Southern Railway Company at Spencer, N. C. About 450 H. P. of motors will be required. A combination of group and individual drive will be used, and all motor driven tools requiring speed variations are to be equipped with Northern two-wire variable speed motors. A Northern 50 Kw. generator will also be used for lighting the Southern Railway Company's shops at Alexandria, Va.

THE SURVEYING AND DRAFTING INSTRUMENTS, devices for automatic calculating, blue printing material and apparatus, nautical instruments, measuring tapes, etc., manufactured by the Keuffel & Esser Company, 127 Fulton street, New York city, are on exhibition in Block 43, Palace of Liberal Arts, at the World's Fair, St. Louis. These articles are displayed in and about an ornamental pavilion, and the nautical instruments are on an imitation ship with a pilot house. The exhibition is artistically arranged and occupies more than 1,500 square feet of floor space.

PREVENTION OF FLAWS IN STEEL CASTINGS.—The Goldschmidt Thermit Company, 43 Exchange place, New York city, claims that the use of its Lunker-thermit will prevent flaws in steel castings. The company states that such flaws occur in most cases under the rising header, in consequence of the steel cooling at that part before the body of the casting. In order to prevent this a box of Lunker-thermit is placed at the bottom of each rising header. The molten steel will have cooled considerably at these points, but will be sufficiently hot to ignite the thermit. The reaction reheats the steel, rendering it fluid, and the liquid steel flows back out of the rising head in sufficient quantities to replace shrinkage and to fill up any cavities which may have been formed.

A COURSE IN INDICATOR INSTRUCTION.—The Indicator Instruction Company, Scranton, Pa., has for fifteen years made a specialty of teaching the use of the steam engine indicator by correspondence. The company's original plan was to loan an indicator to students, while the course of instruction lasted, but there were so many applications from those who desired to own the instrument that the company now gives away a simple form of indicator to each student. A thorough knowledge of the use of the steam engine indicator is indispensable to any engineer who hopes to rise in his profession. The indicator tells the horse power developed; whether or not the boiler pressure is realized in the engine cylinder, and if not how much pressure is lost, due to a steam pipe too long or having too many bends, or from late or insufficient valve opening; whether waste steam is permitted to escape without undue back pressure; whether the work done by the head and crank ends of the cylinder and the high and low pressure cylinder of a compound engine is evenly balanced; whether there is any leakage by valves or piston; whether the engine is over loaded or under loaded; whether a larger engine should be used; and many other points the knowledge of which is essential for procuring the utmost efficiency of a steam plant. The Indicator Instruction Company states that its course is so simple that a man of very moderate education can readily master it. Particulars upon application.

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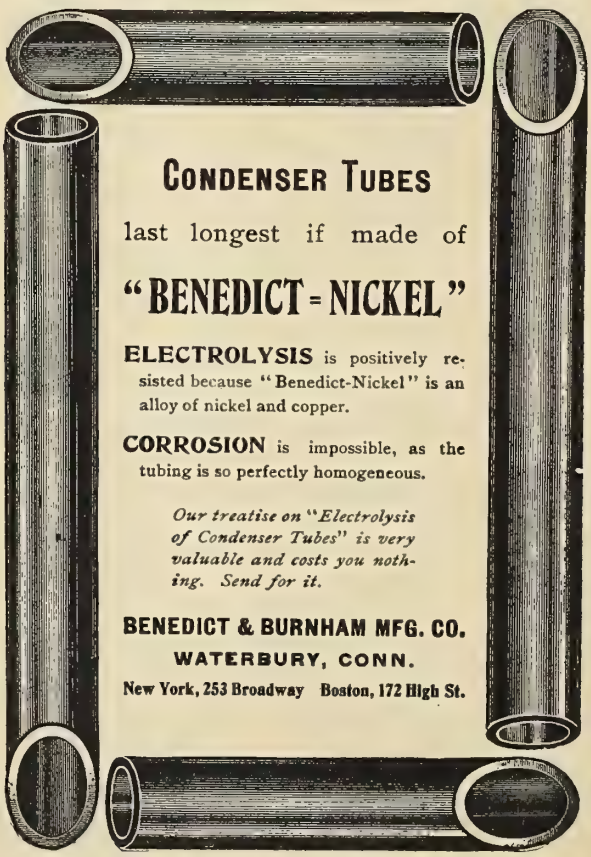

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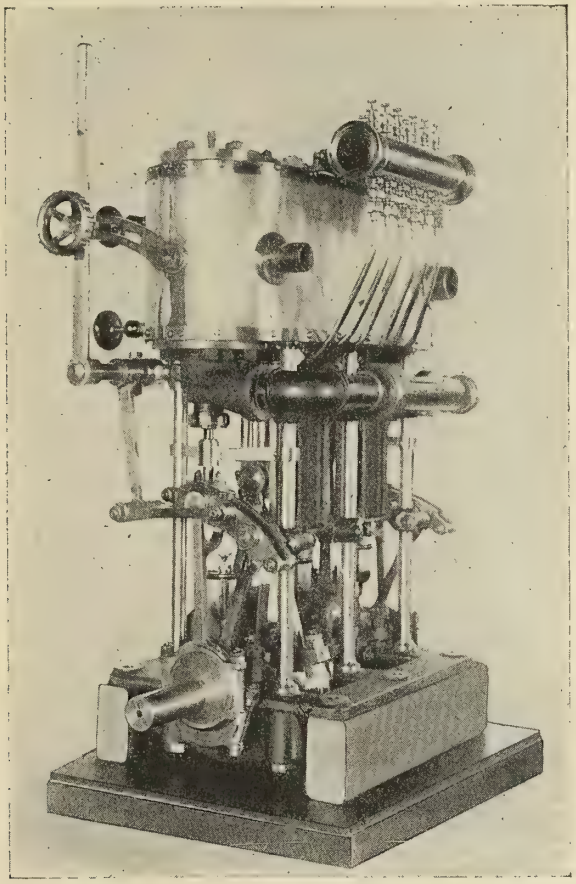

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Second-hand gasoline engines.—The Mianus Motor Works, Mianus, Conn., is offering for sale second-hand gasoline engines of several well-known makes at greatly reduced prices. A list will be sent upon application.

Don't buy what you don't want

but ask for what you do want

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INFORMATION BUREAU . . . .

Steel casting plant.—The National Steel Foundry Company, 114 Liberty street, New York city, announces that it now has in operation a completely equipped plant for making open-hearth steel castings, and is prepared to deliver all orders promptly.

Meteor steering gears.—The Edson Manufacturing Company, 255 Atlantic street, Boston, Mass., has received an order from W. Gould Brokaw, New York city, for a Metor steering gear for his yawl *Sybarita.* This is the same style of gear as that furnished by this company for the yacht *Meteor,* belonging to the emperor of Germany.

Every builder of oil or gasoline engines will be interested in the new engine cock made by the Globe Brass Works, Detroit, Mich. This cock is of an extra heavy weight composition metal, specially ground to stand the gasoline test. The company states that it is meeting with great success. The Globe Brass Works make also steam, gas, gauge, air, and meter cocks; safety, lock, shield, and needle valves; gas mixers; water gauges; ground key bibbs; gasoline fire pots; torches, and other engineers' supplies.

The failure of dial thermometers to satisfy the navy department is evidenced by a recent order to government contractors for United States war vessels to substitute mercurial thermometers of the Hohmann & Maurer type, manufactured by the Hohmann & Maurer Manufacturing Company, Rochester, N. Y. This company makes thermometers and gauges designed especially for marine use. Among the types manufactured are hot well thermometers for feed and injection pipes, scale case thermometers for high pressure steam, superheated steam thermometers and brine pipe thermometers. This company also makes marine barometers and other nautical instruments.

Science reference room.—The Pratt Institute Free Library, Ryerson street, Brooklyn, N. Y., has opened an applied science reference room, devoted to technical and trade literature. It is in charge of Mr. Herbert L. Cowing, a graduate of the mechanical engineering course of Cornell university, and is open every day from 2 until 6, and on Monday, Wednesday, and Saturday evenings until 9:30. The institute wishes to collect trade catalogues and bulletins bearing upon all branches of industry. These catalogues will be accessible to the public; and the institute asks advertisers in Marine Engineering to forward their catalogues and trade literature.

A compact steam capstan windlass.—The Textile Finishing Machine Company, 17 Exchange place, Providence, R. I., makes the claim regarding its steam capstan windlasses that they require about one-half the space occupied by many similar machines; that the capstan runs independently of the windlass when desired, being arranged to work as a power capstan by hand when without steam. The locking key is always in sight, so that in an emergency it can be seen whether the windlass is locked, without stopping to try it. The windlass may be driven either way without reversing the engines, and may also be rolled in or out by taking off bitt caps without distributing any other part of the machine.

A new high pressure packing ring.—The New Jersey Asbestos Company, Camden, N. J., is putting on the market a new packing ring. The company states that this packing is not made by cutting a piece of packing the required length and pressing it in a mandrel until it stays circular in form resembling a ring, but that it is actually molded to shape in steel dies under hydraulic pressure, which makes it almost as solid as though it were made of metal, but without destroying its flexibility. The solidity of the rings, so it is claimed, prevents their blowing out. These rings are made of the same material as the company's "Gladiator" asbestos metallic packing, and are made in many sizes. Any special size desired will be made to order. Any reader of Marine Engineering will receive a free sample ring upon application to the manufacturer.

The Northern Electrical Manufacturing Company, Madison, Wis., has sold to the New York Edison Company, New York city, thirty-four variable speed motors operated on the Northern two-wire field control system. These motors will be direct connected to blowers for cooling the transformers in the company's sub-stations. The New York Edison Company has also purchased from the same manufacturer a sixty Kw. balancing set.

The Mosher Water Tube Boiler Company, 1 Broadway, New York city, a full description of whose boiler appeared in the January, 1904, issued of Marine Engineering, claims that its boiler is the simplest type of the water-tube boiler, as it consists of a steam drum supported by slightly curved tubes which connect it with two water drums, with furnace and grate bars between. A very simple form of feed-water heater, ease in cleaning or removing the tubes, an improved system of circulating the feed water, safety, the absence of stay-bolts, braces and flat surfaces, economy, durability, and steadiness of water and steam pressure are among the advantages claimed for this boiler.

Brown corrugated furnaces.—Readers of Marine Engineering will recall reading an article last year describing the tests made in Philadelphia of the Brown corrugated furnace. These tests are now bearing fruit, as the American Corrugated Furnace Company has been incorporated to manufacture this furnace in the United States. Heretofore, they have been imported, and consequently have been subject to the usual delays and the tariff charges. This plant has been constructed with a view to making furnaces of larger sizes than have yet been built, and also heavy pressed steel work. Mason G. Worth & Company, Philadelphia, Pa., report that they have imported quite a number, and that it is in response to the demand of the shipbuilders that this company has begun business.

Falls hollow staybolts.—Mr. John Livingstone, an engineering expert of Montreal, Canada, writes the Falls Hollow Staybolt Company, Cuyahoga Falls, O., regarding the company's claim that its hollow staybolt iron is the only elastic staybolt iron in the world: "At no stage in the manufacture of iron, from the ore to the rolls, is iron flexible or elastic. It is in its different stages crystalline, brittle, fluid, fibrous, ductile, but never elastic. The iron is ductile and its nature cannot be changed except by its union with carbon. In that way you change the breed and make steel. It is because your bolt is hollow from end to end that a concentrated current of air (which is elastic) passes through it, that you make the claim." Mr. Livingstone writes at full regarding many other points of superiority which the Falls Hollow Staybolt Company claims for its product, and anyone interested in the subject should write for a copy of his letter, which will be sent upon application.

POWELL PATENT "SIGNAL" OILER

AS RECONSTRUCTED
FOR HIGH-GRADE, HIGH-CLASS ENGINES

Signal Lever Up—Oil Dropping
Signal Lever Down—Dropping Stopped

Convenient to fill. Easy to regulate. When once the required rate of feed is obtained it need never be disturbed. If desired to stop the flow of oil, simply drop the lever, as shown by the dotted lines; to again start the flow, raise lever to an upright position. A first-class, reliable Oiler in every sense of the word.

THE WM. POWELL CO.

Manufacturers of Everything in the Steam Line for the Boiler and Engine Room.

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A Chance Courtship

is a story of an unconventional love match, well told and beautifully illustrated. As a bit of readable fiction the story is well worth writing for. It is contained in a handsomely bound book of 128 pages, a portion of which is devoted to the attractive mountain and lake resorts along the Lackawanna Railroad. It is a book you will like to see. It may be had by sending 10 cents in postage stamps to T. W. Lee, General Passenger Agent, Lackawanna Railroad, New York.

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FOR PISTON RODS AND VALVE STEMS OF MAIN AND AUXILIARY ENGINES

RELIABLE—SATISFACTORY—EFFICIENT

The United States Metallic Packing Co.

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MOTOR BOAT AND SPORTSMAN'S SHOW

MADISON SQUARE GARDEN, NEW YORK CITY
FEBRUARY 21 TO MARCH 9, 1905
Address, J. A. H. DRESSEL, General Manager, 1135 Broadway, N. Y.

PORT LIGHTS OF ANY TYPE OR SIZE, for all classes of vessels, are made a specialty by the Delaware Marine Supply Manufacturing Company, Wilmington, Del. This company also manufactures ship fittings in brass, bronze, or other compositions, cleaks, chocks, vents, scuttles, marine hardware, white bronze, and special compositions.

DROP FORGED FOLLOWER PLATE.—The Allegheny Forging Company, Pittsburg, Pa., has placed on the market a design of drop forged, one piece follower plate for spring draft gears. It is lighter than the riveted thimble plates usually used, and saves the expense of drilling the riveted hole, countersinking and riveting the thimble to the plate. It is claimed that trouble with broken rivets or thimbles is not experienced with these followers.

A SATISFACTORY MARINE PLANT.—The Herzog Paint and Varnish Company, Philadelphia, Pa., has received the following letter from F. M. Johnson, master of the steam yacht *Narwhal,* New London, Conn.: "We hauled out the *Narwhal* after being in the water from May to September. Your green anti-fouling paint, which we used the past season, gave better satisfaction than any paint we ever used. The bottom was clean as the day she was launched in May, showing no signs of grass, barnacle, or corrosion. Every one who saw the boat said it was the cleanest they had seen for the time she was in the water, several asking whose paint we used. I referred them to your company. There was really no need of hauling out this fall. I shall be pleased to recommend your paint where I can."

DE LAVAL TURBINE BLOWERS.—Bulletin No. 6, issued by the De Laval Steam Turbine Company, Trenton, N. J., states that blowers of the Sturtevant and Sirocco types have proved particularly successful when direct connected to De Laval steam turbines. In many classes of work where high pressures are required it has been found impossible to keep blower belts tight and in good running condition, so the bulletin states. It has usually been necessary to mount the blower on a sliding base to maintain the proper belt tension, producing large frictional losses. Even with the belts in the best condition, the service is such that it has been found difficult to maintain the proper speed and rated capacity of belted blowers. With machines of considerable size a solid foundation is required for both blower and engine, and with the long belt centers necessary, the room occupied is considerable. The De Laval direct connected turbine blower set lends itself particularly to this class of work, being perfectly balanced, self-contained, and having an ideal speed for this purpose. The regulation is extremely close. There are no adjustable parts on the machine and no belts to cause trouble. The amount of care required is reduced to a minimum; but little in the way of foundation is necessary, and machines can be used in the upper stories of buildings or any desired place.

STEEL HULLS FOR MOTOR BOATS.—W. H. Mullins, Salem, Ohio, is placing on the market 16 and 18-foot stamped steel hulls for motor launches. Mr. Mullins states that these hulls are guaranteed not to leak, and that the constant jar and concussion of the engine will not rack them in the least. Those interested will receive a free catalogue upon application.

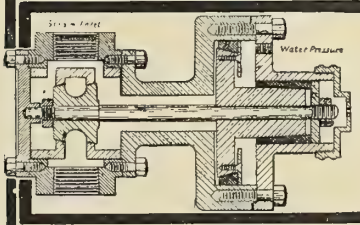
MAGNESIA PIPE COVERINGS AT THE WORLD'S FAIR.—The Philip Carey Manufacturing Company, Lockland, O., states that it 85 per cent. magnesia pipe coverings are used for insulating all the connections of the main power plants at the St. Louis exposition. This company has an elaborate display in Machinery Hall. It has recently issued a complete catalogue of its products, a copy of which will be sent upon request.

HOSPITAL IN MANUFACTURING PLANT.—The B. F. Sturtevant Company, Hyde Park, Mass., manufacturer of ventilating machinery, forced-draft apparatus, fuel economizers, generating sets, etc., is fitting up quarters in its new plant to be used as an emergency hospital in case of accident to employes. It is to be equipped with all the appliances necessary for the proper care, until they can be removed to their homes, of men who are injured while at work. A trained nurse and a medical student will be in charge, and a local surgeon will attend to surgical cases.

THERMIT IN THIS COUNTRY.—The Goldschmidt Thermit Company, 43 Exchange Place, New York city, announces that it has completed arrangements for the manufacture of thermit in this country, and that this new welding process has already been adopted in the United States by a large number of steel works to repair defective castings, by a dozen railway companies for repairing engine frames and drivers, and by six street railway companies for obtaining a continuous rail. At the St. Louis fair the Goldschmidt Thermit Company has an exhibition in the Metals Pavilion, opposite the southeast corner of the Mines and Metallurgy building. Daily demonstrations of this welding process are there given.

A RELIABLE FIRE EXTINGUISHER.—The New York office of Hollander & Tangeman, manufacturers of F. I. A. T. auto boats, writes the H. W. Johns-Manville Company, 100 William street, New York city, as follows: "We confirm our request by telephone that you send someone to refill extinguishers just emptied by our men. A fire started in the rear of our garage, caused by one of the employees throwing some oily waste into the stove at a time when there was gasoline about the floor being used for cleaning purposes, causing the flame to issue through the stove door. In a few seconds the floor was ablaze. Fortunately there were a number of men on the spot, who immediately made use of your extinguishers, with the result that what looked at first to be a very serious fire, was extinguished in a few minutes. We are entirely satisfied with the results which you claim for them."

MULLINS AUTOMATIC CONTROLLER



...FOR BOILER FEED PUMPS...

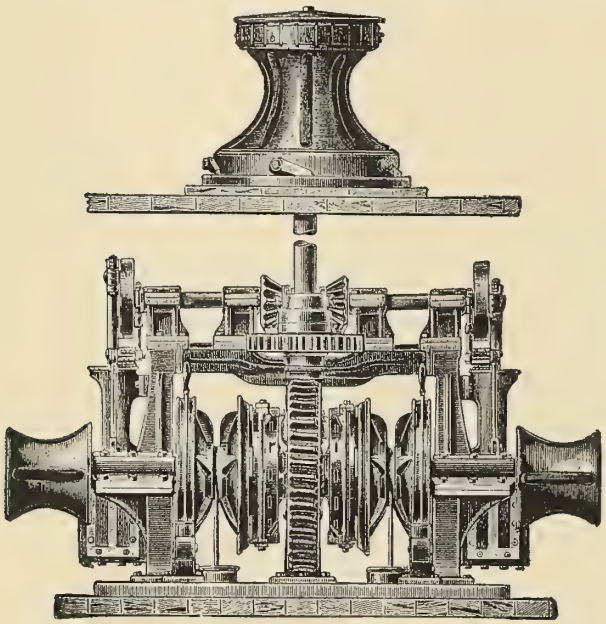
Delivers more water to boilers when steam-pressure is high, and less when it is low, which not only holds the water uniform, but also tends to hold steam pressure uniform, saving fuel that is wasted in pumping too fast and flooding boilers when fires are low. It will outlive any pump, and increase the life of the pump one-half. WRITE US FOR DETAILS.

THE FEDERAL VALVE CO., 2534 WESTERN AVE. SEATTLE, WASH

A REORGANIZATION.—The Seamless Steel Tubes Company, Detroit, Mich., has been reorganized under the name of the Detroit Seamless Steel Tubes Company, and will continue the manufacture of cold drawn seamless steel boiler tubes, automobile axle tubing, and mechanical tubes.

ACETYLENE LIGHTING for yachts and other steam and sailing vessels is described in a catalogue issued by the Commercial Acetylene Company, 80 Broadway, New York city. The following reasons are given to sustain the company's claim that acetylene lights are the best for marine purposes: First. The quality of the light is more nearly like sunlight than that produced by any other system. It is especially adapted to interior illumination, and is giving satisfactory results in binnacle and running lights, as well as in searchlights of high power and penetration. Second. The quantity of acetylene used in a gas jet is one-tenth the amount of ordinary gas that would be used in the same burner, and produces 50 per cent. more candle power. Third. It is safer than any other form of lighting, because of the small quantity used. A jet carelessly left open would not emit enough gas, even in a small room during an entire night, to cause asphyxiation or to produce an explosion. The strong pungent odor of acetylene will instantly make apparent any leak that may occur. Fourth. The small quantity of gas burned (one-half of one cubic foot per hour) makes a small compact flame which cannot be blown out, even in a gale of wind, and which therefore can be used out-of-doors as readily as an electric lamp. At the Buffalo exposition in 1901, the outside of an entire building was decorated with acetylene jets, which burned in the open air in all kinds of weather, and which were not affected by gales or rain; while their great brilliancy added perceptibly to their decorative effect in comparison with the adjoining buildings, the exteriors of which were decorated with electricity.

STEERING GEAR
WINDLASSES, CAPSTANS



AND OTHER SHIP AND YACHT FITTINGS

The Textile-Finishing Machinery Co.

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NEW YORK OFFICE, 39 CORTLANDT STREET

MARINE ENGINEERING EMPLOYMENT BUREAU.

Full information regarding the purposes of this bureau, together with instructions regarding registration, etc., furnished upon application to MARINE ENGINEERING Employment Bureau, 17 Battery Place, New York City.

All correspondence, concerning either vacancies or situations wanted, is strictly confidential.

POSITIONS SEEKING MEN.

BOILER-SHOP FOREMAN. Must be familiar with various types of marine boilers and capable of handling repair work. Knowledge of shipbuilding and repairs will be of great advantage. File 10.

FOREMAN FOR BOAT BUILDING SHOP who has had experience in constructing new hulls, who can attend to repair work and is familiar with gas engines. File 15

GAS ENGINE BUILDER wanted to combine his business with a boat building and repairing shop which has marine railways and an established business. File 40.

SHEET IRON WORKERS, erecting machinists, and steam fitters wanted who have had experience in marine work. File No. 42.

SKILLED BOAT BUILDER who has had experience in handling men, and who can attend to the hull work in large launch works. File 14.

STEAMFITTER AND COPPERSMITH acquainted with plumbing, and able to make estimates; also to take charge in a general way of plumbers, coppersmiths and steamfitters. File No. 36.

SUPERINTENDENT, DESIGNER AND FOREMAN wanted in a shop devoted to the building of small pleasure boats. File No. 35.

ACTIVE AND PRACTICAL SUPERINTENDENT for yacht, launch and boat-building works wanted. One who can take a financial interest in the business preferred. Good opportunity to become associated with a growing business in which all interested are working. File No. 38.

YACHT AND BOAT BUILDER wanted who understands inside joiner work and who is able to superintend the building of launches and yachts under all the branches. File No. 39.

MEN SEEKING POSITIONS.

We have applications registered for positions as follows, and the references of each applicant have been carefully investigated:

ASSISTANT SUPERINTENDENT, ENGINEER OR ASSISTANT ENGINEER IN ENGINEERING WORKS. Age 28; single; of English birth; has British and American licenses and has had several years' sea experience. Application No. 23.

BOILER-SHOP FOREMAN. Age 35; single; many years' experience in Navy Yard and leading shipyards. Application No. 59.

CHIEF OR ASSISTANT CHIEF DRAFTSMAN—ENGINE. Age 33; married; has had sea experience and thirteen years as leading and chief draftsman of private and government shipyards. Application No 25.

CONSULTING ENGINEER AND NAVAL ARCHITECT. Married; born in Germany; had many years' experience in designing, drafting and surveying. Application No. 33.

DESIGNER AND DRAFTSMAN. Has had many years' experience in launch and river boat work. Designed some of the fastest river boats in the country. Application No. 61.

DRAFTSMAN, ENGINE AND BOILER. Age 30; unmarried; has Danish marine license; technical school graduate. Application No. 57.

DRAFTSMAN—HULL. Age 20; single; experienced in architectural work, but prefers marine drafting. Application No. 51.

DRAFTSMAN—HULL. Age 25; married; 9 years' experience in leading yards in drafting, testing materials, surveying, etc. Application No. 54.

DRAFTSMAN—HULL, OR INSPECTOR. Age 37; married; had experience both in government yards and private yards. Application No. 30.

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12 West 31st Street, New York.

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ADDRESSES OF CORRESPONDING SECRETARIES.

No. 1, W. D. Blaicher, 10 Exchange St., Buffalo, N. Y.
" 2, Wm. Kelly, 11 Wall St., Cleveland, O.
" 3, A. L. Jones, 289 Champlain St., Detroit, Mich.
" 4, Jas. A. Macauley, 5802 Indiana Ave., Chicago, Ill.
" 5, Otto Boettger, 1035 E. Hopkins Ave., Baltimore, Md.
" 6, Wm. Arste, 322 Pine St., St. Louis, Mo.
" 7, Wm. T. McElwee, Box 1556, Portland, Me.
" 9, Wm. Bridges, 784 1-2 12th St., Milwaukee, Wis.
" 13, John G. Paulding, 1746 Tulip St., Philadelphia, Pa.
" 14, Joseph F. Dumas, 403 Dauphin St., Mobile, Ala.
" 15, R. L. Skinner, 622 Louisa St., New Orleans.
" 17, Jas. D. Robinson, 6th and Columbia Sts., Newport, Ky.
" 18, Wm. Hurst, 715 Walnut St., Cairo, Ill.
" 20, Jos. B. Barry, 206 Keel St., Memphis, Tenn.
" 21, J. H. Foley, 206 N. Mulberry St., Vicksburg, Miss.
" 23, Wm. R. Lewis, 213 E. Front St., Jeffersonville, Ind.
" 24, Hugh L. Edwards, 511 Washington St., Paducah, Ky.
" 26, T. H. Kirkbride, 228 Bond St., Evansville, Ind.
" 27, L. C. Schwall, 598 S. Madison St., Bay City, Mich.
" 29, James R. Sutherland, Charleston, W. Va.
" 30, E. R. Humphrey, 21 State St., Pittsburg, Pa.
" 33, James J. Waters, 283 Hudson St., New York, N. Y.
" 35, William M. Coombs, 36 East St., San Francisco, Cal.
" 36, Jos. Thomas, 57 Sea St., New Haven, Conn.
" 37, John B. Bender, 1215 Evesham Ave., Toledo, Ohio.
" 38, C. H. Wolford, 73 Starr Boyd Bldg., Seattle, Wash.
" 39, Frank Feeney, 460 E. 12th St., Erie, Pa.
" 40, Chas. Drouet, 1003 Ave. I, Galveston, Tex.
" 41, W. H. Marshall, 343 Holladay St., Portland, Ore.
" 42, Jas. Manning, 802 E. Duval St., Jacksonville, Fla.
" 43, A. J. Wilson, 1327 La Peer Ave., Port Huron, Mich.
" 44, Chas. J. Sullivan, 480 1st St., Manistee, Mich.
" 45, W. L. Salter, Care O. S. S. Co., Savannah, Ga.
" 46, D. W. Farrell, Clayton, N. Y.
" 47, J. R. Cook, Sault Ste. Marie, Mich.
" 48, Alfred Hegemer, 140 E. Park St., Sandusky, O.
" 51, H. S. Connell, 12 Ransom St., Muskegon, Mich.
" 53, Harry Stone, Box 445, Marine City, Mich.
" 55, Archie Stalker, Box 883, Cheboygan, Mich.
" 57, E. B. Meeker, 71 Abeel St., Kingston, N. Y.
" 58, E. Capers Haselden, Box 31, Georgetown, S. C.
" 59, Geo. F. Keating, 74 Webster St., E. Boston, Mass.
" 62, N. S. Lawrence, 30 Connecticut Ave., New London, Conn.
" 63, M. J. Burke, 152 Sheridan Ave., Albany, N. Y.
" 65, W. C. Palmer, Care Consumers' Coal Co., Charleston, S.C.
" 67, James K. Dole, Saugatuck, Mich.
" 70, Chas. T. Smith, 665 Commercial St., Astoria, Ore.
" 72, Wm. T. Findlay, 130 W. Bridge St., Oswego, N. Y.
" 73, E. M. Donahue, 1308 Cherry St., Green Bay, Wis.
" 75, Wm. D. Hemenway, Alexandria Bay, N. Y.
" 76, Orson Vanderhoef, Grand Haven, Mich.
" 77, John P. Hall, 1215 Huron St., Manitowoc, Wis.
" 78, J. P. Burg, 2722 Minnesota Ave., Duluth, Minn.
" 80, Edward S. Welch, 338 Hamilton St., Albany, N. Y.
" 81, Jas. L. Sweeney, 206 E. Sarragosa St., Pensacola, Fla.
" 82, Fred H. Gowell, 427 Middle St., Bath, Me.
" 85, John A. Packard, 623 Merchant St., Alpena, Mich.
" 86, Sherman A. Smith, 737 Menekaunee Ave., Marinetta, Wis.
" 87, Geo. B. Milne, 809 Fourth St., Detroit, Mich.
" 88, C. O. Chapman, S. B. Canal, Sturgeon Bay, Wis.
" 89, Geo. E. Willard, 4 Isabella St., Ogdensburg, N. Y.
" 91, A. L. McLaren, 130 W. Walnnt St., Ashtabula, O.
" 92, Jos. D. Budd, Box 50, Sta. I, Saginaw, W. S., Mich.
" 93, W. J. Cook, 2220 G. St., N. W., Washington, D. C.
" 94, Geo. R. Jones, Box 222, Washington, N. C.
" 95, P. J. McMahon, Box 199, Key West, Fla.
" 98, C. N. Vosburg, 6323 Patton St., New Orleans, La.
" 100, H. F. Mocine, Honolulu, H. I.
" 101, J. K. Cotton, Box 765, Norfolk, Va.
" 102, Fred W. Linsemeyer, 210 Clinton St., South Haven, Mich.
" 103, A. E. Pittman, Box 378, New Bern, N. C.

TRADE PUBLICATIONS.

"The Preservation of Ships by Electrically Operated Doors and Hatches of the 'Long Arm' System," is the title of Bulletin No. 8, issued by the "Long Arm" System Company, Cleveland, Ohio.

Barr outside centre packed pumps.—A mailing card issued by the Barr Pump Company, Lehigh avenue and 18th street, Philadelphia, Pa., says: "There may be pumps made as strong as the Barr pumps, but none are stronger. There may be workmanship as thorough as the Barr workmanship, but none any better. Do you wish to have our new catalogue on file? Sent on request only."

Turner carbureters.—The Turner Brass Works, Franklin and Michigan streets, Chicago, Ill., have received the following letter from A. F. Meisselbach & Bro., 22 Prospect street, Newark, N. J.: "Kindly send us one of your latest Turner carbureters with one-inch intake for a 14-H.P. Buffalo engine. We have induced quite a few other people to use your carbureter, especially those using a Buffalo engine. Ours is giving splendid satisfaction."

A modern battleship is illustrated and its parts minutely described in an engraving three feet long published by the Derry-Collard Company, 256 Broadway, New York city. There is an index to nearly 500 parts. This engraving is said to be from a drawing by one of the best mechanical illustrators in the country, and to represent two years of draftsmanship of the highest order in conjunction with naval experts. Any one interested in studying problems that must be solved in battleship building should send fifty cents for a copy of this engraving.

Steam pumps are described and illustrated in a 52-page catalogue issued by the A. S. Cameron Steam Pump Works, foot of E. 23d street, New York city. This catalogue states: "If you are seeking a pump that is cheap and nothing else, we have to say that we do not attempt to compete in price with the cheaper and short-lived pumps. Our policy, steadfastly pursued since the beginning of our business, has been to build the very best pump that good material and skilful workmanship can produce." Among the valuable qualities the makers claim for this pump are simplicity, durability, and absence of outside valve gear or moving parts. The catalogue exhaustively describes many of the pumps made by the company, and any one interested in the subject should not fail to send for a free copy of the catalogue.

Smooth-on iron cement, for marine engines and boilers, gas and oil engines, steel and iron construction, and engineers' and machinists' work of all kinds, is the subject of a 100-page catalogue issued by the Smooth-On Manufacturing Company, 572 Communipaw avenue, Jersey City, N. J. Smooth-On is a plastic iron compound that metallizes and becomes a part of the casting or other iron into which it is introduced. It is sold in powdered form, and in order to use it all that is necessary is to make a thick putty with water and apply the mixture to whatever part of the casting is defective. In a few hours a chemical change has converted it into iron and the defective part may be finished the same as any other part of the casting, leaving a smooth, hard surface the same color as the casting. The repair is permanent and the Smooth-On may be chipped, filed, and treated in every way like the original metal. Smooth-On is claimed to be extremely valuable for boiler patches being used by engineers, ship builders, and the United States government in place of white and red lead and iron borings. There are many illustrations in the catalogue showing repairs made with Smooth-On to pumps, castings, flanged joints, steam pipe leaks, etc. Many testimonial letters from prominent engineers are reproduced, and no one interested in the subject should fail to send for a free copy of the catalogue. The company's new product, Smooth-On sheet packing is also described.

Graphite for the motor is the title of a booklet issued by the Joseph Dixon Crucible Company, Jersey City, N. J. Those interested in the subject of lubrication for gasoline motors and automobiles would do well to send for a free copy of this booklet.

Marine boilers, boiler plates, steel shafts, generating sets, slow speed motors, electric hoists, and other machinery, are described in a folder issued by the Portland Company, Portland, Me. This company is an outgrowth of the Portland Locomotive Works. Its plant has been enlarged and fitted with the latest patterns of air, electric, and hydraulic tools.

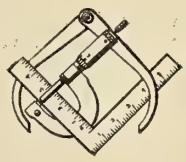
An improved liquid for hydraulic jacks.—The Watson-Stillman Company, 46 Dey street, New York city, is mailing a folder calling attention to its "Jackohol," a new liquid for hydraulic jacks. The folder states that hydraulic jacks are frequently injured by the use of impure liquids. The company has experimented with many liquids for this use. Various formulas have been tried in order to obtain an anti-freezing liquid which would prevent rust and corrosion and not injure leather packings. After several years of experimenting the company has placed on the market its new liquid, "Jackohol," which, it states, not only fulfils all the necessary requirements, but only costs about half as much as the standard formula generally in use.

Producer gas, its uses and cost, is the title of a 16-page pamphlet issued by the Wile Power Gas Company, Cutler building, Rochester, N. Y. This pamphlet states that "producer gas is the cheapest form of energy from fuel and is made in gas producers. It is is used as a motive power for driving gas engines, and also extensively as fuel for heating and furnace work. Any class of fuel can be used in our gas producers, but in small plants anthracite coal, coke or charcoal would be preferred. Producer gas is made by passing a mixture of steam and air through an incandescent fuel bed in a closed producer. The fuel in the producer is converted into fixed gases and only the ashes remain." Those interested should send for a free copy of the Wile Power Gas Company's catalogue.

Valveless gasoline marine motors are the subject of an illustrated catalogue issued by the Lackawanna Valveless Motor Company, 1268 West avenue, Buffalo, N. Y. The Lackawanna motors operate on the two-cycle principle. The catalogue states that the absence of springs, gears, cams, levers, valves, and push rods makes them simple, reliable, and long lived. The jump-spark system of ignition is employed. The bearings are stated to be of ample dimensions, lined with a special bearing metal and reamed to size. Crank shafts are of forged steel and the connecting rods are made of bronze. All cap screws are held by lock washers or cotter pins where necessary to prevent loosening. The Lackawanna reversing device obviates, so the catalogue states, the necessity for reversible blade propellers or reversing gear.

L. S. STARRETT says:

If you find any tools better than Starrett Tools—buy them.



Send for Free Catalogue No. 17L of Starrett Tools, 176 pages.

The L. S. Starrett Co.

Athol, Mass., U. S. A.

A Business Proposition

FOR SALE AT A BARGAIN

A complete set of patterns of marine machinery of all sizes. For full particulars, address

MARINE MACHINERY

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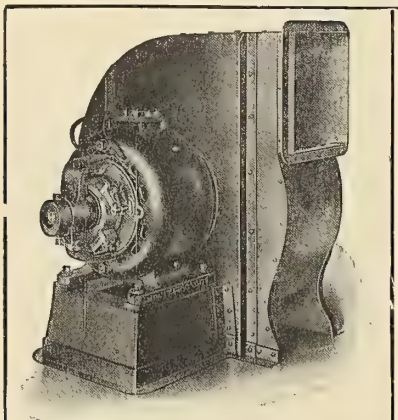

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FOR

THE VENTILATION OF VESSELS

MOTORS FOR ALL PURPOSES ON SHIPBOARD, also ELECTRIC DECK WINCHES

INTERIOR TELEPHONE SYSTEMS, GONGS AND SIGNALS, ALSO ANNUNCIATORS FOR MARINE WORK, IGNITORS FOR MARINE GAS ENGINES.

THE HOLTZER-CABOT ELECTRIC CO.

BOSTON (BROOKLINE), MASS.

CHICAGO, 395-397 Dearborn Street, NEW YORK, 143 Liberty Street

DIXON'S
GRAPHITE
PIPE JOINT
COMPOUND

Very Useful on Shipboard

Not only upon piping of all sorts but upon bolts, nuts, caps, studs, etc. Threaded joints never rust or stick.

Write for new booklet 75-D, and free sample.

JOSEPH DIXON CRUCIBLE CO., JERSEY CITY, N.J.

Rules and measuring tapes are described in a folder issued by the Lufkin Rule Company, Saginaw, Mich.

An "Investigation of the Doble Needle Regulating Nozzle" is the title of a pamphlet issued by the Abner Doble Company, engineers, San Francisco, Cal.

"What! A Leather Belt Running in Water?" is the title of a folder issued by the Graton & Knight Manufacturing Company, Worcester, Mass. The company states that it has solved this problem, and that it is now making an absolutely water-proof leather belt. Catalogue and testimonials will be sent upon application.

Pressure and vacuum gauges, of the self-contained type, for every known purpose; marine clocks, engine registers, counters, speed indicators, steam engine indicators, gauge testing pumps, proving pumps, pop safety valves, water gauges, gauge cocks, air cocks, automatic air valves, oil and grease cups, thermometers, etc., are described in Catalogue No. 3, issued by the Standard Gauge Manufacturing Company, Syracuse, New York. This catalogue contains 106 pages and is profusely illustrated. The company calls attention to many new appliances illustrated which were not found in its last catalogue. As an illustration of the great variety of instruments the company manufactures, it states that it makes pressure gauges varying in weight from forty pounds to four ounces. Those interested should send for a free copy of this catalogue.

Variable speed motor drive for machine and machine tools is the subject of illustrated Bulletin No. 37, issued by the Northern Electrical Manufacturing Company, Madison, Wis. The bulletin states that machine shop operators have been hampered for years by reason of the fact that their machine work has cost too much. "Investigation of Northern variable speed motors will convince intending purchasers that our apparatus is economical in operation, efficient, compact, simple, and endowed with numerous exclusive features of merit which make it the only successful variable speed motor on the market. We solicit the inquiries of those interested in variable speed transmission."

Mullin's duplex-automatic regulator and mixer for fuel oil is described in a folder issued by the manufacturers, the Federal Valve Company, Seattle, Wash. The folder states: "On the steam pipe feeding the oil pump we install one of our patented stated pressure pump controllers, which regulates the pump action to deliver oil at any desired stated pressure regardless of steam fluctuations. The oil regulator and mixer, operated by a spring (which can be set to any desired pressure) on one side of a diaphragm and the initial steam pressure on the other, responds instantly to the slightest variations of steam pressure. When steam pressure falls below the desired point the spring exerts its excess pressure on the diaphragm, which is connected to and is a part of the valve rod, and opens the valves enough to admit the oil and steam for atomizing in its proper proportions to again restore the steam pressure. When this is accomplished and the steam pressure returns to the desired point, the valves automatically close, or nearly so, keeping just enough fire to maintain the pressure.

Pop safety valves, water relief valves, cylinder relief and snifting valves, boiler trimmings, globe, angle, straight-way and check valves for all pressures, are described in Catalogue No. 100, issued by the Crane Company, Chicago, Ill. This is a completely illustrated catalogue of 96 pages, giving price lists, tables of dimensions, and much detailed information. Regarding the company's safety valves, the catalogue states that their construction embodies a self-adjusting feature automatically regulating the pop of the valve, producing the least waste of steam between the opening and the closing of the valves. In order to allow the valve to close promptly and easily, a self-adjusting auxiliary valve and spring are attached, which are entirely independent of the main valve and spring. The steam in the pop chamber finds a passage through holes into an annular space provided in the auxiliary valve or disc, and by reason of the light auxiliary spring this pressure lifts the auxiliary valve and allows the steam in the pop chamber to escape gradually, thus permitting a great range in setting pressures with small waste of steam, and at the same time supplying a cushion, thereby preventing hammering and affording the easiest possible action in closing.

WATCH THIS SPACE FOR OUR NUMEROUS SPECIALTIES.

WALWORTH MFG. CO.
TOOLS and SUPPLIES for STEAM WATER and GAS USERS
BOSTON MASS.

GOLD MEDAL—ST. LOUIS EXPOSITION
FOR
VALVES, BRASS and IRON GOODS, PIPE FITTINGS, ETC., ENGINEERS', GAS and STEAM FITTERS' TOOLS
AWARDED 1904, TO
WALWORTH MFG. CO., Boston, Mass., U. S. A.
Boston, 128-136 Federal Street New York Office, Park Row Building
Write for Pocket Catalogue.

JOBBERS SELL THEM—IF YOURS DON'T, WRITE.
New York, Park Row Building. WALWORTH MFG. CO., Boston, 128 Federal Street.
Write for our BLUE CATALOGUE "D." showing complete line of engineers' pipe fitting tools.

The Barr surface condenser with vacuum and circulating pump is illustrated and described in a mailing card sent out by the Barr Pump Company, Lehigh avenue and Eighteenth street, Philadelphia, Pa. The card says: "our condensers share with our pumps the Barr characteristics of extra strength and workmanship."

Hindley worm gears and spirals are the subject of a 92-page, illustrated catalogue issued by Morse, Williams & Co., Philadelphia, Pa. The catalogue states that the advantages of Hindley worm gears is that they have a greater number of teeth in contact, and for a given pitch have a greater depth of tooth and a wider face, and therefore a given load on the pitch diameter of the gears is distributed over a greater area, with less pressure per square inch of contact. The gears, so the catalogue states, are particularly adapted to the reduction of speed from motors.

An automatic steam flue cleaner.—The Globe Brass Works, Detroit, Mich., is mailing a folder describing its automatic steam flue cleaner. The folder states that the head is made to fit on the face of the flue, and when pressed against it the valve opens, permitting the steam to enter in a spiral shape, thereby removing all soot and other matter instantly. When released the steam is shut off by the pressure closing the valve, allowing cleaner to be passed to the next opening without disturbing the soot gathered in the fire box and blowing it all over the operator and boiler room. The head and couplings are made of heavy brass, and will stand high pressure.

The Chandler planer is illustrated and described in a catalogue issued by the Chandler Planer Company, Ayer, Mass. Among the good qualities the manufacturer claims are: Any cutting speed up to ninety feet per minute; if cutting speed does not exceed sixty-five feet per minute, a return speed of 200 feet per minute; if cutting speed exceeds 65 feet per minute, a return speed of 150 feet per minute; a variable speed device that increases the belt ratio in exact proportion to the reduction of the platen speed; two return speeds to every cutting speed. Case hardened shafts. A feed regulating device by which the feed may be instantly varied through its entire range, by moving a lever on a marked dial.

Taylor water tube marine boilers are illustrated and described in a 78-page catalogue, issued by the Taylor Water Tube Boiler Company, 322 Franklin street, Detroit, Mich. In designing these boilers it was the aim of the makers to produce a boiler that would be purely a water tube boiler without qualifications, with all the advantages inherent to that type, and yet one that would embody in its designs adherence to certain rules of steam generation derived by experience, the adherence to which is not peculiar to any one type of boiler, but which, the catalogue states, are frequently disregarded in the water tube type. In the catalogue the Taylor water tube boiler is described in its smallest detail, and how the well-known difficulties experienced in the use of water tube boilers, past and present, have been overcome.

"Western" marine gasoline engines are the subject of an illustrated folder issued by the Western Launch and Engine Works, Michigan City, Ind. The folder says: "While we have no apology to offer for our production of 1904, we are always alive to the benefits of maintaining the highest standard of excellence, and as improvements become apparent and desirable, they will be made. Our 1905 machine will be practically the same as our 1904 in design, but will contain several minor changes, principally with reference to increasing durability of wearing parts and in making the engine a little neater in appearance. Heretofore we have always given particular attention to the inside of the engine, possibly neglecting a trifle the general outward appearance. Our aim from now on will be to have the general appearance and finish of the engine in harmony with the quality of workmanship and materials used."

To Paint a Vessel White

with anything but **Oxide of Zinc** paint is to commit a wasteful act of folly. All ship painters know or ought to know that there is no marine white except

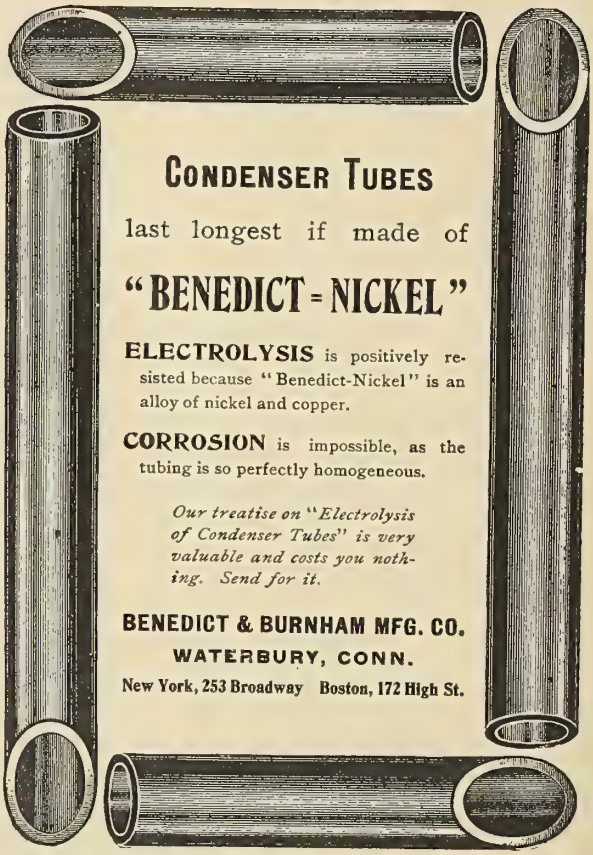
Zinc White

FREE: OUR PRACTICAL PAMPHLETS

"The Paint Question,"
"Paints in Architecture,"
"Specifications for Architects,"
"Paint: How, Why and When;"
"French Government Decrees."

THE NEW JERSEY ZINC CO.
71 BROADWAY
NEW YORK

We do not grind zinc in oil. List of manufacturers of zinc white paints will be furnished on request.



CONDENSER TUBES

last longest if made of

"BENEDICT-NICKEL"

ELECTROLYSIS is positively resisted because "Benedict-Nickel" is an alloy of nickel and copper.

CORROSION is impossible, as the tubing is so perfectly homogeneous.

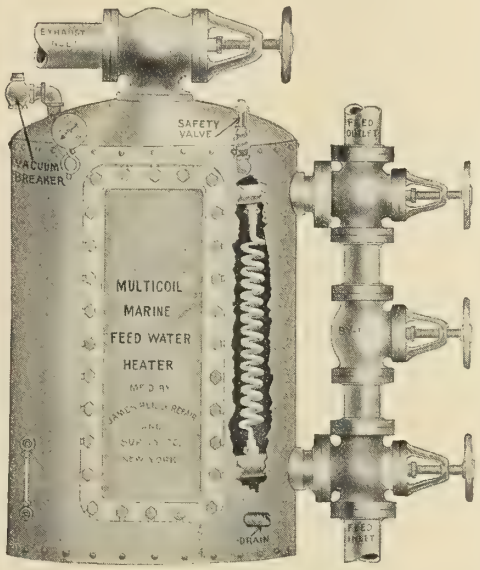
Our treatise on "Electrolysis of Condenser Tubes" is very valuable and costs you nothing. Send for it.

BENEDICT & BURNHAM MFG. CO.
WATERBURY, CONN.
New York, 253 Broadway Boston, 172 High St.

About Your Heaters

No crawling or leaky tubes—perfect elasticity—light weight—no air pocketing—entirely automatic—only one pump required.

In our heater, the water flows from a cooler to a warmer zone, and in this way one square foot of our coil heater does as



much work as two square feet of tubes. The efficiency of a heater depends not on the quantity of surface, but on the agitation of the liquid and its velocity of flow. Our coils are arranged to agitate and rotate the water during its passage.

With our heater, it is merely a matter of opening the side door and all the coils are accessible for removing the grease, which is impossible in a straight tube heater.

Will you read the

Tri-City Supply House's

"Feed-Water Sense" Booklet?

Mfrs.

THE JAMES REILLY REPAIR & SUPPLY CO.

Main Office, 229 West Street
NEW YORK CITY

AWARDS AT THE ST. LOUIS EXPOSITION.

THE BUFFALO GASOLINE MOTOR COMPANY, Buffalo, N. Y. Highest award for gasoline engines.

THE NORTON EMERY WHEEL COMPANY, Worcester, Mass. Two grand prizes and two gold medals.

THE SIROCCO ENGINEERING COMPANY, 22 Thames street, New York city. A grand prize for fans and blowers.

THE GOLDSCHMIDT THERMIT COMPANY, 43 Exchange place, New York city. A grand prize for the company's new welding process.

AUGUST MIETZ, 128 Mott street, New York city. A gold medal and special diploma for oil engines.

THE BOSTON & LOCKPORT BLOCK COMPANY, 160 Commercial street, Boston, Mass. A gold medal for improvements in tackle blocks.

THE WESTINGHOUSE COMPANIES, Pittsburg, Pa. Twelve gold medals, four silver medals, and one bronze medal for electrical machinery and appliances.

THE EUREKA FIRE HOSE COMPANY, 13 Barclay street, New York city. A gold medal for its "Eureka," "Paragon," and "Red Cross" brands of seamless rubber lined fire hose.

THE C. W. HUNT COMPANY, West New Brighton, N. Y. A gold medal for its narrow-gauge industrial railway, and a silver medal for its electric storage battery locomotive.

THE WALWORTH MANUFACTURING COMPANY, 128 Federal street, Boston, Mass.—A gold medal for valves, brass and iron goods, pipe fittings, engineers', gas and steam fitters' tools, etc.

THE KEUFFEL & ESSER COMPANY, 127 Fulton street, New York city. The grand prize for instruments of precision, philosophical apparatus, etc. A gold medal for instruments and equipment for underground surveying.

BUSINESS NOTES.

THE STEAMSHIP, railway, and mill supply business carried on for twenty-five years by the late H. A. Rogers, at 19 John street, New York city, will be continued at the same location by the H. A. Rogers Company.

A SCRAPING TOOL FREE.—The Mound Tool and Scraper Company, 712 Howard street, St. Louis, Mo., will send a free souvenir scraping tool with every order for Mound packing tools from those who mention MARINE ENGINEERING.

THE STAR CONDENSER PACKING TOOL has revolutionized the packing of tube ends of surface condensers, according to the claim of its makers, Matteson & Drake, The Bourse, Philadelphia, Pa. Those interested should send for a catalogue.

AN IMPROVED DROP HAMMER.—The Billings & Spencer Company, Hartford, Conn., says: "When you buy a Billings & Spencer patent, improved drop hammer, you get a machine exactly like those used in our own plant in producing our enormous output of drop forgings of every description. Catalogue D for the asking."

"THIS IS THE DAY OF THE MOTOR DRIVE," says the Stow Flexible Shaft Company, Philadelphia, Pa. So the company has fitted its shaft to the General Electric Company's motor, and the result, it is claimed, "beats any arrangement ever invented for drilling, tapping, reaming or grinding." Free catalogue upon request.

GALVANIZED BAR IRON, SPIKES, NAILS, CHAIN, ETC., in stock for immediate shipment, are advertised by the United Galvanizing Company, Inc., 525 North Front street, Philadelphia, Pa. This company claims to have the largest galvanizing plant in the country, and states that it makes a specialty of large orders.

Moncrieff Scotch gauge glasses are advertised by H. A. Rogers Company, manufacturers of engineers' supplies, 19 John street, New York city.

All types of working and pleasure craft, up to 150 feet in length, are made by the Standard Boat Company, Long Island City, N. Y. This company is building a high-speed steam launch for use in Mexico.

Ball bearing, vertical letter filing cabinets, with drawers which run on ball bearing attachments, eliminating all friction, are manufactured by the Wagemaker Furniture Company, Ltd., Grand Rapids, Mich. These cabinets are in great demand in drafting rooms and offices of all kinds. Catalogue L will be sent upon application.

Will enlarge factory.—The Delaware Marine Supply Manufacturing Company, Wilmington, Del., is building a 100 by 40 foot, two-story factory building which will contain a large polishing room, plating, lacquering, cleaning, and store rooms. The increase in the company's business has made this addition to its factory necessary.

A new marine gasoline engine.—Frank I. Hitchcock, Bridgeport, Conn., has built a factory, dock, and office at 130 Seaview avenue, and is taking orders for gasoline engines up to 100 horse power. Mr. Hitchcock states that these engines are constructed by gasoline engine builders of long experience and that only the best materials and workmanship enter into their construction.

A satisfactory dry dock.—The railway dock recently built by the H. I. Crandall & Son Company, East Boston, Mass., for the Portland Shipbuilding Company, Portland, Me., has been successfully tested. The H. I. Crandall & Son Company has received a contract to build a 1000-ton railway dry dock for Wm. Kehoe & Sons, Savannah, Ga. The company has also nearly completed a dock at Clayton, N. Y.

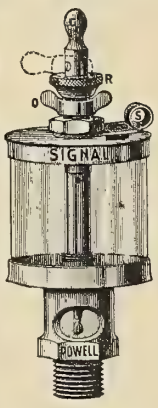
Northern electrical motors.—The Northern Electrical Manufacturing Company, Madison, Wis., has received from the Cutler-Hammer Manufacturing Company, Milwaukee, Wis., the contract to supply the electrical equipment for its works. This contract was received after the subject of electrical machinery had been carefully investigated for the Cutler-Hammer Company by Sargent & Lundy, consulting engineers, Chicago, Ill.

A fast motor boat.—The motor boat *Ontario*, built by the Electric Launch Company, Bayonne, N. J., for Commodore H. B. Moore, of the Atlantic Yacht club, during her trial trip on the Hudson river, November 6, made a mile at the rate of 24.66 knots an hour, according to the official figures. Mr. H. R. Sutphen, general manager of the Electric Launch Company, states that on her trip up the river the boat made twenty-five miles in forty-two minutes, and that she is capable of maintaining this speed for a distance of 150 miles.

POWELL PATENT "SIGNAL" OILER

AS RECONSTRUCTED FOR HIGH-GRADE, HIGH-CLASS ENGINES

Signal Lever Up—Oil Dropping
Signal Lever Down—Dropping Stopped



Convenient to fill. Easy to regulate. When once the required rate of feed is obtained it need never be disturbed. If desired to stop the flow of oil, simply drop the lever, as shown by the dotted lines; to again start the flow, raise lever to an upright position. A first-class, reliable Oiler in every sense of the word.

THE WM. POWELL CO.

Manufacturers of Everything in the Steam Line for the Boiler and Engine Room.

Send for Complete Illustrated Catalogue.

CINCINNATI, O., U. S. A.

New York Depot, H. H. BEALS, 51 Cliff St.
Philadelphia Depot, C. J. RAINEAR & CO., 518 Arch St.

A Chance Courtship

is a story of an unconventional love match, well told and beautifully illustrated. As a bit of readable fiction the story is well worth writing for. It is contained in a handsomely bound book of 128 pages, a portion of which is devoted to the attractive mountain and lake resorts along the Lackawanna Railroad. It is a book you will like to see. It may be had by sending 10 cents in postage stamps to T. W. Lee, General Passenger Agent, Lackawanna Railroad, New York.

UNITED STATES METALLIC PACKINGS

FOR PISTON RODS AND VALVE STEMS OF MAIN AND AUXILIARY ENGINES

RELIABLE—SATISFACTORY—EFFICIENT

The United States Metallic Packing Co.

427 North Thirteenth St., PHILADELPHIA. CHICAGO, 509 Great Northern Bldg.

MOTOR BOAT AND SPORTSMAN'S SHOW

MADISON SQUARE GARDEN, NEW YORK CITY
FEBRUARY 21 TO MARCH 9, 1905
Address, J. A. H. DRESSEL, General Manager, 1135 Broadway, N. Y.

AN EFFICIENT OIL PURIFIER.—Patterson, Gottfried & Hunter, manufacturers of engineers' supplies, 146 Centre street, New York city, say: "Do you understand the difference between filtering oil and purifying it? Filtering thins the oil and wastes it, but the McClelland oil purifier will save 50 per cent. of your oil bills. An illustrated booklet tells why. Shall we send it?"

MILLIVOLTMETERS, VOLTAMMETERS, MILAMMETERS, ohmmeters, portable galvanometers, ground detectors and circuit testers are made by the Weston Electrical Instrument Company, Waverly Park, Newark, N. J. The company states that its portable instruments are recognized as the standard the world over.

A NEW STEEL-CASTING PLANT.—The Standard Roller Bearing Company, 48th street and Girard avenue, Philadelphia, Pa., has bought a large tract of land near its factory, and will build a steel-casting plant and a large addition to its foundry. The company's business has greatly increased under the management of Mr. S. S. Eveland.

SPECIALTIES IN BRONZE, SOLID PROPELLERS of any size or pitch, adjustable propellers, reversible and self-clearing propellers, castings for hydraulic purposes, gasoline and kerosene engine fittings of all kinds, steering wheels, brackets, chocks, cleats, deck plates, and other marine hardware are manufactured by the Norwalk Brass Company, Norwalk, Conn.

A RELIABLE CIRCULATING PUMP is one of the essential features of all water jacketed gas or gasoline engines, and the more simple, compact, and durable it is, the less liability there is of its getting out of order and impairing the efficiency of the engine. To meet the demand a bronze pump especially designed for such use has been placed on the market by the Brown & Sharpe Manufacturing Company, Providence, R. I.

TWO-CYCLE MARINE GASOLINE ENGINES, ranging in size from two to eight horse power, are built by the Toquet Motor Company, Saugatuck, Conn. The company states that all double cylinders are cast in one piece, and both controlled by the same mechanism; that all parts are interchangable; that the igniter is simple, positive and durable, and that the bearings are of sufficient size to insure cool running.

NEW LAUNCH AND ENGINE WORKS.—The Western Launch and Gas Engine Works, Mishawaka, Ind., which manufactures "Recreation" launches and "Western" gas engines, will remove its office and works to Michigan City, Ind., where it has secured an excellent location on the harbor front, on which it will erect a two-story factory containing a complete equipment of modern machinery. The company has been reorganized under the name of the Western Launch and Engine Works, Inc. Dr. F. R. Warren is president, Robert Zorn vice-president, Emil Klopsch secretary and treasurer, and James A. Reeves is manager. The company will build boats of all kinds, from a small row boat to a 75-foot cabin yacht.

BLOCKS FOR SHIPS, YACHTS, and marine work of all kinds are advertised by Merriman Bros., 162 Commercial street, Boston, Mass. This company designs and makes special blocks for special purposes. Catalogue sent upon request.

MARINE SUCTION GAS PLANTS.—Mr. C. W. Whiting, 812 Exchange building, Boston, Mass., who has had many years' experience as a gas engine expert, is prepared to install suction gas plants in yachts and other boats where efficient and economical power is desired. Additional information regarding the system may be had upon application.

SHEET PACKINGS, GASKETS, FLANGE RINGS, piston rod packings, valve stem and cylinder packings, for ordinary or superheated steam, air, acid, and oil, are manufactured by the H. W. Johns-Manville Company, 100 William street, New York city. The company makes a specialty of its "Kearsarge" packing, for which great superiority is claimed in point of efficiency, durability, and economy.

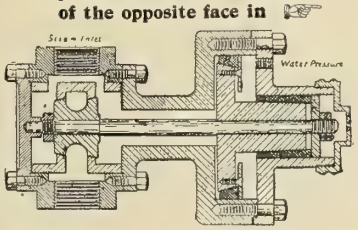
FALLS HOLLOW STAYBOLTS IN JAPAN.—The Falls Hollow Staybolt Company, Cuyahoga Falls, Ohio, has received an order from the Kiushiu Railway Company, of Japan, for 47,200 pounds of Falls Hollow round staybolt bars. The Kiushiu Railway Company has made severe tests of these staybolts, which have resulted most satisfactorily. Other Japanese railways and the Norwegian State railways are also using the Falls Hollow staybolts.

THE KEASBEY & MATTESON COMPANY, Ambler, Pa., is having a large demand for a new specialty, which is a sort of fireproof board designed especially for bulkhead and partition work on board vessels and yachts of all kinds. It is composed of magnesia and other fireproof materials, is strong, and can be painted and given the attractive appearance that wood can. Samples of this material can be had upon application to the company.

A SATISFACTORY STEAM TRAP.—E. F. Houghton & Company, 3d and Somerset streets, Philadelphia, Pa., has received the following report from Otto Fries, chief gunner in charge of the United States naval magazine, Iona island, N. Y.: "Regarding the Marck steam trap, from E. F. Houghton & Co., Philadelphia, Pa.: This steam trap has been in constant use since it was received at this station, April 20, 1904, and has given excellent results."

A WELL-KNOWN SUBMARINE COMPOUND.—Samuel J. Williams & Co., 70 Broad street, New York city, report that they have been making anti-corrosive and anti-fouling compounds for iron and steel vessels for sixty-one years. The Williams compound is recognized as being of especial value in tropical waters. It is used by the United States navy and revenue cutter service, by the Old Dominion line, the Red D line, by the Pacific Mail Steamship Company, and by many other lines. The manufacturers have numerous agents and can give estimates on docking and painting at almost any dock in the world.

BY putting the Steam Pressure on one face, and the water pressure on the reduced area of the opposite face in



MULLINS AUTOMATIC
CONTROLLER FOR FEED PUMPS,

a water pressure in excess of the steam pressure is maintained absolutely without regard to the fluctuations of the steam.

The large piston area renders it extremely sensitive to the slightest varation in water pressure, maintaining a high degree of uniformity in both water level and steam pressure, saving fuel and protecting both boiler and engine.

A booklet, now in preparation, will tell you all about the Mullins Automatic Controller. We want you to have a copy of that book.

FEDERAL VALVE CO., 2534 Western Avenue, SEATTLE, Wash.

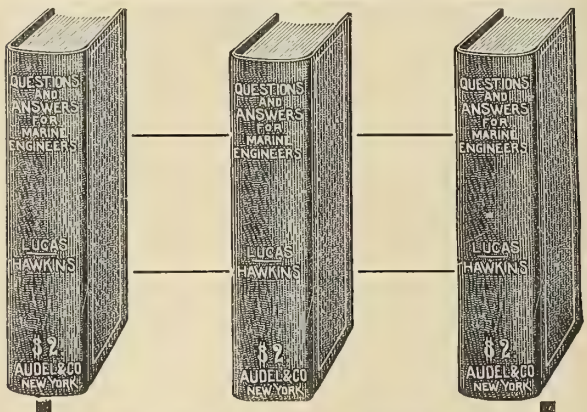
Chain pipe wrenches.—J. H. Williams & Company, manufacturers of drop forgings, Brooklyn, N. Y., state that they have two kinds of chain to sell with the "Vulcan" chain pipe wrench, but that one of them is superior to the other. The company's flat link chains are from 25% to 50% stronger than its cable chains, which the United States and the British governments have pronounced "unsurpassed."

Mr. Charles Lang, formerly with the Wheeler Condenser and Engineering Company, 120 Liberty street, New York City, has joined the sales department of the A. D. Granger Company, at the New York City office, 95 Liberty street. Mr. Lang will make a specialty of pumps and condensers, the Granger Company having acquired the agency for the Bar Pump Company, of Philadelphia.

Nicholson ship logs.—The Nicholson Ship Log Company, 204 Superior street, Cleveland, Ohio, in advertising its ship log, states: "You do not have to guess at the speed of your vessel if equipped with the Nicholson log. The exact speed of the moment is constantly before you on a dial and is recorded on a paper chart. The distance traveled is correctly shown on a counter. Guaranteed to register within two per cent. No expense to operate if not abused. Wind the clock once a day and it will do its work automatically."

An excellent anti-fouling paint.—The Hertzog Paint and Varnish Company, 627 Cherry street, Philadelphia, has received the following letter from Mr. George Lewis, master of the steam yacht *Ituna*, New London, Conn: "When the *Ituna* was hauled out, on September 29, after being in the water since June 21, her bottom was in remarkably good condition. Except for a little grass for about two feet down from the water line, there was only a slight scum on the surface. When this was removed the paint was found to be almost as good as when it was applied. It had not cracked, or flaked off anywhere. Above the water it looked as clean and bright as when it was put on. The paint has given the best satisfaction of any we have ever used."

Mechanical draft apparatus.—The American Blower Company, Detroit, Mich., states that the application of fans to induced draft work has made many changes from the established standards of fan builders in order to avoid difficulties never met with in other lines of fan work. Many of the fans on the market are built with two or three spiders, except in the very small sizes. A fan of the standard type usually has a bearing on each side, making the distance between bearings comparatively short. With this arrangement there is no deflection to the shaft, and the fan wheel runs smoothly. But when these fans have to be adapted to the handling of hot gases it is necessary to keep the bearings removed from the path in which the gases travel as the bearing would become overheated. This necessitates either having an overhung wheel or placing one bearing outside of the inlet chamber built onto the side of the fan. Unless the bearings are placed very close to the center of the fan the overhang will cause deflection which will work the keys loose and perhaps cause the fan wheel to strike the housing. The same is in a large measure true of the two bearings far apart. Increasing the diameter of the shaft is not a relief, as by its own weight it will deflect. Then, again, the intense heat within the housing causes it to expand, and as the steel frame work of the housing is outside and at a much lower temperature than the shell, the natural curvature, if any, is inward. Just how much this expansion will amount to can never be predetermined, hence the greatest of care in setting up will often prove of no value when the fan is put into operation, causing the wheel to strike on one or the other of the sides or at certain points. These are points for serious consideration with any one who has had experience with this line of work. The American Blower Company has devoted a great deal of time to the improvement of these details, and will be glad to send the results of its experiments describing the improvements it has made to all who are interested.



THIS work is a most complete treatise, covering a course in mathematics, the management of marine engines, boilers, pumps, and auxiliary apparatus, the accepted rules for figuring the safety-valve, etc.

The book is divided into two parts: Part I, Construction; Part II, Operation; it contains 700 pages; 807 questions with carefully prepared answers, with nearly 300 explanatory foot-notes; it is illustrated with plate drawings, diagrams and cuts, and an index with more than 1,000 ready references; the volume is 5¼ x 8½ inches, 1½ inches thick, and weighs nearly three pounds; it is strongly and durably bound in rich green cloth, with full gilt edges.

Price, $2, postpaid to any address

FIFTEEN DAYS' EXAMINATION

To all readers of Marine Engineering and friends we will send without any expense, subject to fifteen days' inspection, a copy of this work.

We make this offer to get the volume more widely known among the members of M. E. B. A. The book is approved by the authorities and endorsed by the leading men in the profession.

If after the book is received it is not found satisfactory, it can be mailed back to the publishers. It is shipped in a patent wrapper so it can be reforwarded with very little trouble if not purchased. But to see this treatise is to want it.

INSPECTION BLANK

Date.....

To ***THEO. AUDEL & CO.***
63 Fifth Avenue, New York City

Accepting your offer to allow me to examine a copy of "Questions and Answers for Marine Engineers," I ask you to mail a copy, postpaid, subject to fifteen days' examination, and if I find same satisfactory I agree to send you $2.00 in payment or return you the book after of fifteen days.

Name.....

Address.....

Occupation.....

.....

.....

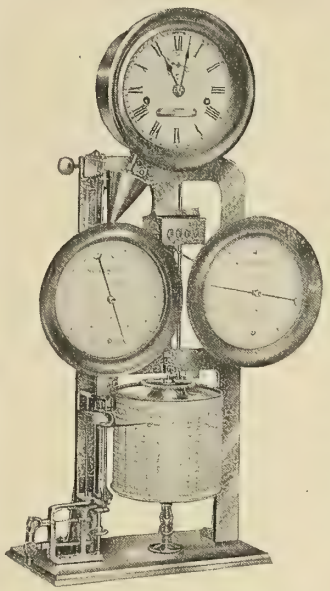
Money Refunded if Not Entirely Satisfactory

SEND FOR MARINE CATALOG

THEO. AUDEL & COMPANY
PUBLISHERS
63 Fifth Avenue, New York

YOU do not have to guess at the speed of your vessel if equipped with the

Nicholson Log



The exact speed of the moment is constantly before you on a dial and is recorded on a paper chart. The distance travelled is correctly shown on a counter. Guaranteed to register within 2%. No expense to operate if not abused. Wind the clock once a day and it will do its work automatically.

Catalogues and Full Information on Request.

Nicholson Ship Log Co.
204 SUPERIOR STREET, CLEVELAND, O.

Wagemaker Ball-Bearing Vertical Letter Filing Cabinets

with drawers which **run** on **ball-bearing** attachments **entirely** overcome **all** friction or binding. **Each** drawer will accomodate **5,000 papers.**

January First you will transfer your **Old Year's** papers and get systems started for the **New Year's** business.

Order one of our systems and cabinets, with the **Ball-Bearing** Vertical Filing drawers in, and have the **best** obtainable. **No other line has this feature.**

Our systems and filing devices are the **most modern** in use **anywhere** and are **easily** adapted to **every** department in **any** business.

We manufacture a **complete** line of **solid** and **sectional** cabinets, card index systems, etc. An exhibit of our goods and systems will be made in **Booth No. 95** during the **Office Appliance** and **Business System Exhibition** at **Madison Square Garden, New York City, December 12, 13 and 14.**

Write on business stationery for our new ***Catalogue L.*** *Address*

WAGEMAKER FURNITURE CO., LTD.
EXCLUSIVE MANUFACTURERS OF BUSINESS OFFICE SYSTEMS
450 So. Market St., GRAND RAPIDS, MICH., U. S. A.

THOSE REQUIRING MARINE MACHINERY for stern or side wheelers, or propeller-driven boats, marine boilers, propeller wheels, steam launches, tug boats, shallow draft boats and machinery, should write to the Marine Iron Works, Station A., Chicago, Ill., for trade literature.

SPACE AT THE MOTOR BOAT EXHIBITION.—Following the allotment to members of the National Association of Motor Boat Manufacturers, there still remains some space at the motor boat exhibition, to be held in conjunction with the Sportsmen's Show, at Madison Square Garden, New York city, in February. This space will be given to those making first application, and after it is gone there will be no more room for motor boats during the two weeks' exhibition.

THE PARSONS MARINE STEAM TURBINE COMPANY, LTD., 97 Cedar street, New York City, is prepared to grant licenses in the United States for the building of Parsons turbines for the purpose of marine propulsion. The advantages of the turbine system the company states to be absence of vibration, increased economy in coal consumption, reduced cost of attendance on machinery, reduced consumption of oil and stores, reduced diameter of propeller, giving increased facilities for navigating in shallow waters, and reduction in racing of propellers.

YACHT SAIL MAKERS.—Wilson & Silsby, Rowe's Wharf, Boston, Mass., call attention to the fact that they make a specialty of sails for racing yachts. They have furnished sails for the following well-known yachts: *Constitution, Defender, Volunteer, Jubilee, Colonia, Independence, Ailsa, Navahoe, Weetamoe, Uncle Sam, Effort, Calypso, Flirt, Ariadne, Quissetta, Constance, Intrepid, Vergemere, Resolute, Chanticleer, Senta, Snapper, Raider, Little Haste, Sally VII, Chloris,* and many others. They have on hand constantly high-grade sail cloth, manufactured especially for them.

ASSISTANT CYLINDERS FOR VALVE GEARS.—Mr. Luther D. Lovekin, 6320 Drexel Road, Overbrook, Philadelphia, Pa., has placed on the market an assistant cylinder for valve gears, which he states is a money saver for the steamship owner, a labor saver for the engine-room force, and a guarantee that the valve gear will work perfectly. Mr. Lovekin states this his invention may be applied to any engine, old or new, without difficulty, and that it is now in use on engines aggregating more than 130,000 horse-power, among which are the *Texan,* of the American-Hawaiian Steamship Company; the *Massachusetts,* and the *Mississippi,* of the Atlantic Transport Steamship Company; the *Manchuria* and *Mongolia,* of the Pacific Mail Steamship Company, and the *Ontario,* of the Merchants' and Miners' Transportation Company, It has also been ordered fitted to the U. S. Cruiser *Washington* and the U. S. battleship *Kansas.*

A CYCLOPEDIA OF APPLIED ELECTRICITY.—The American School of Correspondence, at Armour Institute of Technology, Chicago, Ill., is publishing a cyclopedia of applied electricity in five volumes, which is intended to be a practical guide for marine engineers, stationery engineers, electricians, engineering students and all persons interested in electricity. There are five hundred pages in all, fully indexed. Every section is said to be written by an acknowledged authority. A limited number of introductory sets will be sent free for examination as soon as received from the press. The regular price of the set is $30, and the American School of Correspondence states that it will accept reservation orders until the books go to press for $12.50. Those desiring to have a set reserved at the reduced price must send $2.50 with the application, as an evidence of good faith. The books will be sent prepaid on approval, and may be returned at the school's expense if not satisfactory. Those writing to the American School of Correspondence and mentioning MARINE ENGINEERING, will receive full particulars and a partial table of contents.

THE WEBSTER SYYTEM OF STEAM CIRCULATION, made by the Warren Webster Company, Camden, N. J., is being installed in the new Wanamaker stores in New York and Philadelphia.

REAR ADMIRAL GEORGE W. MELVILLE, Ex-Engineer-in-Chief of the United States Navy, has formed a partnership with Mr. John H. Macalpine, M. I. N. A., under the name of Melville & Macalpine. The new firm will conduct business at 615 Walnut street, Philadelphia, Pa., as consulting engineers and naval architects.

A NEW MARINE SUPPLY COMPANY.—Captain H. J. Howes, James Otis Porter and Hollis Burgess, have entered into the marine supply business under the name of the Maritime Stores Company, with stores and office at Lewis' Wharf, 38 Atlantic avenue, Boston, Mass. The new company has a private landing and has launches running about the bay to deliver goods. The company is prepared to furnish a large variety of maritime supplies, fruit, meats, canned goods and provisions of all kinds, rope, blocks, chandlery, paints, oils, varnish, etc. The store will be kept open all night.

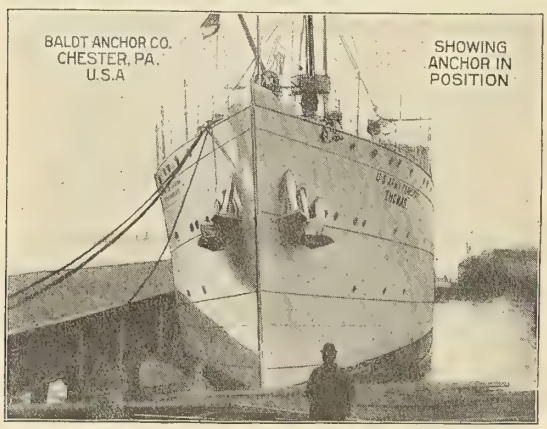
CONTRACT FOR COAL-HANDLING MACHINERY.—The Wellman-Seaver-Morgan Company, Cleveland, Ohio, has received a contract to construct two large coal-handling machines for the Boston Coal Dock and Wharf Co., Duluth, Minn. This is one of the docks under the management of the St. Paul & Western Coal Co. The machines will consist of two conveyor bridges, each about 350 feet long, including front and rear cantilevers. They will be designed so that coal may be screened and loaded into box cars as well as unloaded from vessels, and will be built to be operated by steam. They will be equipped with 2-ton Hulett patent excavating buckets, and machinery designed to give maximum speeds of operation. The structural work will be of steel throughout, and the machines will be self propelling along the dock.

Gas Engine Business
FOR SALE

Including Complete Set of Patterns for all Sizes

The engine has been on the market several years and has made an excellent reputation. For full information, address

GAS ENGINE, care Marine Engineering
17 Battery Place, New York



MARINE ENGINEERING
EMPLOYMENT BUREAU.

Full information regarding the purposes of this bureau, together with instructions regarding registration, etc., furnished upon application to MARINE ENGINEERING Employment Bureau, 17 Battery Place, New York City.

All correspondence, concerning either vacancies or situations wanted, is strictly confidential.

POSITIONS SEEKING MEN.

BOILER-SHOP FOREMAN. Must be familiar with various types of marine boilers and capable of handling repair work. Knowledge of shipbuilding and repairs will be of great advantage. File 10.

FOREMAN FOR BOAT BUILDING SHOP who has had experience in constructing new hulls, who can attend to repair work and is familiar with gas engines. File 15.

GAS ENGINE BUILDER wanted to combine his business with a boat building and repairing shop which has marine railways and an established business. File 40.

SHEET IRON WORKERS, erecting machinists, and steam fitters wanted who have had experience in marine work. File No. 42.

SKILLED BOAT BUILDER who has had experience in handling men, and who can attend to the hull work in large launch works. File 14.

STEAMFITTER AND COPPERSMITH acquainted with plumbing, and able to make estimates; also to take charge in a general way of plumbers, coppersmiths and steamfitters. File No. 36.

YACHT AND BOAT BUILDER wanted who understands inside joiner work and who is able to superintend the building of launches and yachts under all the branches. File No. 39.

MEN SEEKING POSITIONS.

We have applications registered for positions as follows, and the references of each applicant have been carefully investigated:

ASSISTANT SUPERINTENDENT, ENGINEER OR ASSISTANT ENGINEER IN ENGINEERING WORKS. Age 28; single; of English birth; has British and American licenses and has had several years' sea experience. Application No. 23.

BOILER-SHOP FOREMAN. Age 35; single; many years' experience in Navy Yard and leading shipyards. Application No. 59.

CHIEF OR ASSISTANT CHIEF DRAFTSMAN—ENGINE. Age 33; married; has had sea experience and thirteen years as leading and chief draftsman of private and government shipyards. Application No 25.

CONSULTING ENGINEER AND NAVAL ARCHITECT. Married; born in Germany; had many years' experience in designing, drafting and surveying. Application No. 33.

DESIGNER AND DRAFTSMAN. Has had many years' experience in launch and river boat work. Designed some of the fastest river boats in the country. Application No. 61.

DRAFTSMAN, ENGINE AND BOILER. Age 30; unmarried; has Danish marine license; technical school graduate. Application No. 57.

DRAFTSMAN—HULL. Age 20; single; experienced in architectural work, but prefers marine drafting. Application No. 51.

DRAFTSMAN—HULL. Age 25; married; 9 years' experience in leading yards in drafting, testing materials, surveying, etc. Application No. 54.

DRAFTSMAN—HULL, OR INSPECTOR. Age 37; married; had experience both in government yards and private yards. Application No. 30.

DRAFTSMAN—HULL. Age 22; single; born in Norway; studied Technical schools in Norway and Germany; experience as draftsman, also as shipfitter. Application No. 31.

DRAFTSMAN—HULL. Age 27; single; has had six years' experience on government work and in private yards; graduate of Webb's Academy. Application No. 65.

DRAFTSMAN—HULL AND ENGINE. Age 26; single; graduated Webb Academy; has had four years' experience in navy yard work; desires connection with private shipyard. Application No. 41.

DRAFTSMAN—ENGINE. Age 26; single; 12 years' experience in drafting; excellent penman. Application No. 18.

DRAFTSMAN—ENGINE, STEAM OR GAS. Forty-three years old; single; born in Germany; has had extensive experience in designing and drafting; has had sea experience. Application No. 32.

DRAFTSMAN—MARINE. Age 34; married; accustomed to intricate drafting work. Application No. 50.

DRAFTSMAN—YACHT. Age 26; single; studied Worcester and Massachusetts Technical Schools; had experience in buying and superintending construction work. Application No. 28.

ENGINE SUPERINTENDENT OR DESIGNER. Age 45; married; many years' practical experience in well-known shipyards with engines, auxiliaries, etc. Application No. 56.

ENGINEER OR ENGINE SHOP WORK. Age 29; single; English parentage; has British Board of Trade second-class license; many years' experience at sea and in setting up and caring for marine machinery. Application 58.

FOREMAN MACHINIST OR CHIEF ENGINEER. 31 years old; married; British and American licenses; born and learned trade in Scotland; experienced in estimating on repair work. Application No. 17.

FOREMAN—BOILER SHOP. Age 37; single; 16 years' experience in boiler shop work. Application No. 47.

GANG FOREMAN IN ERECTING SHOP OR FITTING UP ENGINES IN SHIPS. Age 37; married; has been with present employers 15 years. Application No. 26.

GAS ENGINE OPERATOR. Age 22; single; has had several years experience in caring for, and repairing of, gas engines. Will go to Florida for the season. Application No. 67.

GAS ENGINE OPERATOR. Age 28; single; born in Germany; 7 years' experience; understands gas engines thoroughly. Application No. 48.

HULL SUPERINTENDENT. Age 42; married; born and learned trade in Scotland; studied at Glasgow School of Naval Architecture; experienced as foreman; surveyor and hull superintendent. Application No. 27.

LAUNCH AND YACHT DESIGNER. Age 29; married; educated Massachusetts Institute of Technology; several years' experience in designing and construction work and gas engine building. Application 63.

LAUNCH AND YACHT SUPERINTENDENT AND DESIGNER Age 34; married; has had about fifteen years' experience in some of the best known launch and yacht building establishments in the country. Application No. 62.

LEADING DRAFTSMAN OR SUPERINTENDING ENGINEERING FOR STEAMSHIP LINE. Age 34; married; studied Massachusetts Institute of Technology; 11 years' experience in drafting and other marine work. Application No. 53.

LOFTSMAN. Age 33; single; has had eight years' experience as loftsman, foreman, and draftsman. Application No. 44.

MASTER OF STEAM YACHT. Age 37; married; born in Norway; has license as master and pilot on ocean steamer; has commanded several well-known yachts. Application No. 40.

MASTER OF SHIP OR YACHT. Age 40; 7 years' experience; has first class master's license for all ocean and coastwise steamers and pilot for most harbors on the coast. Application No. 39.

MASTER OR PIER SUPERINTENDENT. Age 38; has spent whole life at sea and has British Extra and American master's certificate; pilot New York and San Francisco; experience in handling men and cargoes. Application No. 35.

MASTER AND PILOT. Age 44; single; 11 years' experience; has license for 500 tons as master and pilot ocean and inland for New York, New Haven, and New London districts. Application No. 20.

OILER. Who has had experience on one of the well-known coastwise lines seeks position. Application No. 64.

OILER OR SHOP HAND. Age 21; single; born in Belgium; had considerable shop experience. Application No. 22.

SPECIAL NOTICES.

Announcements under this heading will be inserted at the uniform rate of thirty-three-and-a-third cents a line or fraction thereof, for the first insertion, and twenty-five cents per line for each subsequent insertion. Lines average ten words each. The heading counts as a line, as does also the address.

REPRESENTATIVE WANTED.

An experienced representative is wanted to handle patented steam specialties. Retired engineer preferred. See advertisement of Power Specialty Company.

TWO CYCLE GAS ENGINES, 3½ to 24 H. P., weighing from 120 lbs. to 600 lbs., are advertised by the Rochester Gas Engine Company, 700 Driving Park avenue, Rochester, N. Y.

A HIGH PRESSURE PACKING.—The Bostosking Packing and Supply Company, 170 Sumner street, Boston, Mass., is advertising a high pressure packing which it states is the "king of high pressure packing."

A NEW REVERSIBLE PROPELLER.—Those interested in reversible propellers should write to William E. Geyer, Cambridge, Mass., for literature on the subject of his new reversible propeller and general propeller designing.

THE CASE ENGINE for marine lighting, pumping or refrigerating plants, is said by its makers, the New Britain Machine Company, New Britain, Conn., to combine all the features which the latest practice requires in engines for direct connected purposes.

MARINE BOILERS, INTERNALLY FIRED TYPES, and centrifugal pumping machinery are manufactured by the Kingsford Foundry and Machine Company, Oswego, N. Y. The company will be pleased to send its trade literature to those interested.

HAS OPENED A NEW YORK OFFICE.—Mr. John Haug, 536 Bourse building, Philadelphia, Pa., consulting engineer and naval architect, surveyor to the British corporation, has opened an office in New York city. His address is care of Mather & Company, 51 Wall street.

PNEUMATIC TOOLS FOR SHIP YARDS—The Rand Drill Company, 128 Broadway, New York city, is calling attention to its products, stating that "shipyards, to be well equipped, should be fitted with our Imperial pneumatic piston drills, chippers and riveters."

MARINE GASOLINE ENGINES of the two and four cycle types, from 1½ to 25 horse power, built with reversible propeller or inboard reverse gear, as desired, are advertised by the Frank M. Watkins Manufacturing Company, 547 Baymiller street, Cincinnati, Ohio.

DREDGING AND DREDGING MACHINES.—The Atlantic, Gulf and Pacific Company, Park Row Building, New York City, is calling attention to its superior facilities for carrying on dredging operations upon a large scale. This company makes a specialty of land reclamation, and builds docks, piers, foundations and bridges.

SHIP RIGGER who has had many years' experience in ship work both on board ship and in shipyards. Application No. 41.

SUPERINTENDENT FOR STEAMSHIP COMPANY. Age 29; married; experienced in hull and engine drafting. Application No. 37.

SUPERINTENDENT. Many years' experience in managing a well-known shipyard, both in the securing of orders and executing them; has wide acquaintance. Application No. 19.

SUPERINTENDENT OF LAUNCH WORKS. Age 24; single; four years' experience, including boiler designing and hull drafting; educated Brooklyn Polytechnic School and Cornell University. Application No. 15.

SUPERINTENDING ENGINEER, CHIEF DRAFTSMAN, ESTIMATOR OR SURVEYOR. Age 34; married; born and educated in Scotland; 15 years' experience in Scotland, Ireland, and this country. Application No. 46.

The Peerless Spiral Piston and Valve Rod Packing

It will hold 400 lbs. of steam

Once tried always used

Will run twelve months in high speed engines

Arctic Packing

To be used exclusively for packing Ammonia Pumps

This packing is made in several hundred sizes

This packing is specially constructed for ice machine service, of layers of rubber and plies of duck which are so arranged and laid as to best resist the actions of ammonia, cold and heat.

The duck is a specially made duck, frictioned with an entirely new compound heretofore unknown to the rubber trade, and the core and back is of the celebrated **Rainbow Packing** compound, which is specially adapted to resist ammonia, cold and heat.

This packing is constructed on a strictly scientific basis, and the results obtained thus far have demonstrated fully its value for ammonia packing.

This packing is made in several hundred sizes. The rings may be slipped onto the rod very readily.

The usual rule is to be observed in giving measurements, the depth and width of stuffing box and size of piston rod, in order to get the size desired.

Sole Manufacturers of the

Celebrated Rainbow, Eclipse Sectional Rainbow Gasket, Hercules Combination and Honest John Packings.

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